# N-300-PRG

## Programmer Manual


July 1998

TD1105
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# Contents

# N-300-PRG REMOTE PROGRAMMER

## 1. General

### 1.1 Introduction

An N-300-PRG Remote Programmer allows a wider range of programming steps to be performed on an N-300 than Master tags do. The general technique for using the Remote Programmer is similar to Program Masters, in that they too are recognized by the N-300 when held within read range.

In fact, an N-300-PRG Remote Programmer may be regarded as a Master that has a more extensive repertoire and is equipped with a numeric keyboard. When presented to the N-300, a unique code (engraved on the outside) is transmitted, in a similar fashion as with normal tags or Master tags. If the code is unknown to the N-300, the Remote Programmer is ignored. This offers security against unauthorized attempts to obtain access or to perform memory management operations.

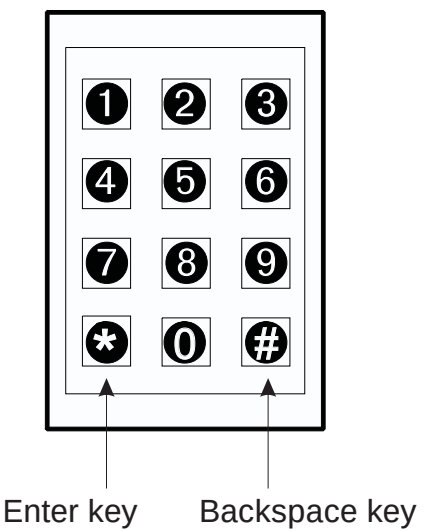
When a valid programmer is presented to the N-300, it will switch itself to Program mode. All LED's will turn off, except for LED number 7, the Program LED.

The Remote Programmer is operated within reading range of the N-300, by typing one or two digit numbers on the Remote Programmer keyboard, using the Enter key (*) for punctuation, and the Backspace key (#) for correcting typing errors. With option 10*4* on, LED 1 is used to indicate that the Remote Programmer is within reading range, as is the case with a normal tag.

The Remote Programmer should be presented and held in a stable position, where all LED's on the N-300 are visible, for example beside the reader. The read range will be about 10 % to 20 % higher than with ISO prox cards.

While the N-300 is in Program mode, it will sound a short beep at each numeric key press. Pressing the Enter key will cause the N-300 to execute the chosen function, as determined by preceding numeric key presses, and to display the resulting status with its LED's.

Execution of a complete programming step is illustrated on the facing page.



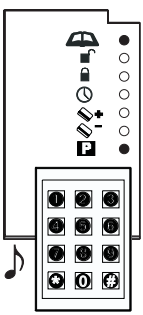
## Remote Programmer Example

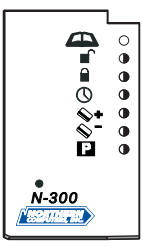
1. Set Program mode, keeping the Remote Programmer in read range

2. Type the program number on the keyboard. Possible leading zeros (white keys) can be omitted.

3. LEDs light up to show the chosen function.

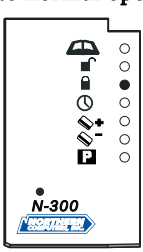
The chosen program is executed.






A program may involve several steps, each with key presses, LED read-outs, and/or presenting of tags.

Once a Remote Programmer function is completed, the **N-300** usually returns to normal operation.




Outputs: Inactive
Inputs: Inactive

If several different functions must be performed consecutively, the user can leave the Remote Programmer within range, and switch the N-300 back into Program mode by pressing * or #. Alternatively, the Remote Programmer can be moved out of read range, and then back into read range to return to Program mode.

## 1.2 N-300 Indicators

**LEDs**–The N-300 has a row of seven LEDs, that serve as status indicators.

| *LED* | *Color* | *Function* |
|---|---|---|
| 1: Read | Yellow | On when a tag or Programmer is within read range and being identified |
| 2: Open | Green | On when door or gate is unlocked |
| 3: Closed | Red | On when door or gate is locked—Access mode |
| 4: Night Lock | Red | Night Lock mode |
| 5: Add | Red | Add mode |
| 6: Void | Red | Void mode |
| 7: Program | Red | On when a Program Master or Remote Programmer is presented—Program mode |

This manual describes the N-300 procedures step by step, showing the LED readout after each step. The status of each LED is shown as either on, off, blinking, or unknown (which usually means that the LED may be either on or off, depending on the situation):

● on ❍ off ✷ blinking ◗ unknown

**Sound–**In addition to the LED display, the N-300 provides feedback by emitting certain sounds in certain situations:

- a short beep (for example when a tag is read) ♩
- or a long beep (recognition of a Master tag) ♪

## 1.3 Levels and procedures

The various programming steps for the N-300 consist of entering either a one or a two digit number on a Remote Programmer.

In the first part of this manual, the one digit programming steps are explained. The later sections, “User”, “Installer", “Miscellaneous", deal with the two digit programming steps.

Programming step “0", explained below, is intended for use before transportation, and for the consecutive wake-up at the point of delivery and/or installation (the N-300 is normally set at level 1 in Sleep mode before shipment). Programming steps “1” to “9” concern end user functions and are discussed later.

### Authorization levels

In particular where it must be mounted in open, “unguarded” positions, e.g. at a front gate or door, the N-300 can be protected against any illegal operations by means of a built-in multi-level authorizations system. In descending order, these authorization levels are called Manufacturer, Distributor, Dealer, Installer, and User.

It is possible to omit some levels. However, it is recommended to add at least one Remote Programmer at installer level or higher (level 1 or higher) for backup/maintenance purposes. The actual implementation of a security scheme in accordance with customer requirements is up to the supplier(s).

## 2. Wake-up

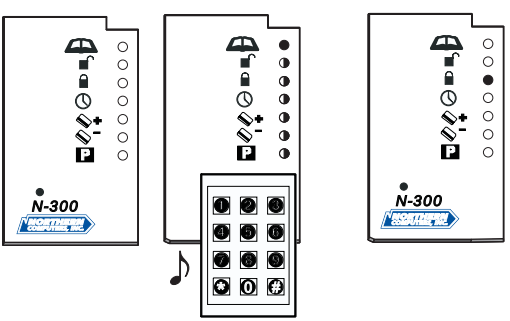
When powering up the N-300 from Sleep mode, an N-300-PRG Remote Programmer or Master Programming card must be presented. This Programmer or card will be added at the level at which the N-300 was put to sleep.

At Wake-up the LEDs 2–7 indicate the level it was set to. (see below).

| | Sleep mode Level 1 | Sleep mode Level 0 |
|---|---|---|
| LED | Declare Installer Programmer | Declare User Programmer |
| 2 | ● | ○ |
| 3 | ○ | ● |
| 4 | ● | ● |
| 5 | ● | ● |
| 6 | ● | ● |
| 7 | ● | ● |

### Wake-up Operations

1. Power on (click)
2. Declare remote programmer at specific level
3. Access Mode




Outputs: Inactive

Inputs: Inactive

Remarks:

- Any new Remote Programmer will be accepted. Its unique code will be memorized.
- Remote Programmers, that are already present in memory, are accepted only if they have been set at the same level.
- In case of a mistake in the level setting, the Wake-up mode can be bypassed by presenting any added Remote Programmer during power up. Thereafter the N-300 will immediately enter Program mode.
- Note: special care must be taken if the N-300 was set at a higher level than the presented Remote Programmer. Since the bypass cannot be undone, it is possible that the N-300 will miss a level.
- If the wrong Remote Programmer is presented, it can be changed by memorizing the correct Remote Programmer and using this to void the unwanted one.
- Where several N-300 units are in use, for easier management and better security, one and the same Remote Programmer can be employed on all installations, as long as they are on the same level.
- Label the Remote Programmer with its level to avoid mistakes.
- Record the number of the Remote Programmer and its level. In case of loss it can be removed from memory by number, using a backup Remote Programmer added before shipment.

Possible errors:

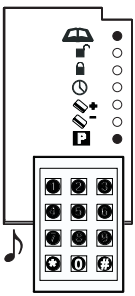
- An N-300-PRG Remote Programmer is not added to memory; after the error tone the N-300 returns to Wake-up mode. The Programmer number is present in memory, but at a different level. Apply another Remote Programmer. If a mistake was made when setting Sleep mode, a bypass of this mode can be performed by re-powering the N-300 while presenting the Remote Programmer. As mentioned above, great care must be taken when doing so, since the bypass cannot be undone.
- If the N-300 indicates Access or Night Lock mode from the start, and returns errors on presentation of tags or Programmers, the unit was not in Sleep mode on power-up. Most likely a Remote Programmer was already added. Check whether any Remote Programmer was supplied with the N-300. If not, no memory management is possible; please contact your supplier.

## 3. Set operation level, set to sleep mode (0*)

To provide for using a single Master or Remote Programmer at the same level on different N-300 units, the N-300 must be specially prepared before shipment. When such a unit is powered up, the first tag or Programmer presented will be set to the level the N-300 was set to before shipment, gaining a superior status to tags and Programmers that are added later.

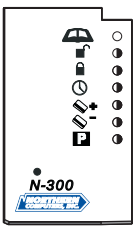
## Show and/or set operation level

1. Set Program mode



2.

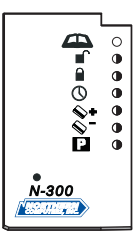
3. Show current level



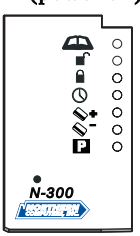

## Set a new level, prior to entering Sleep mode

4. Set new level “n”

5.



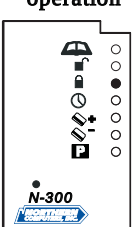

6. Go to sleep mode (power off)




## Resume normal operation

4.

5. Resume normal operation



Remarks:

- Set a higher level than the level of the Programmer itself is not allowed.

Possible errors:

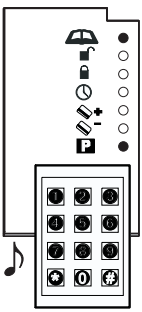
- The N-300 does not enter Program mode, instead an alarm sounds. The Programmer is not present in memory: present another Programmer.
- When setting the level, an alarm sounds, after which the N-300 resumes normal operation; the level ("n") which was entered is higher than the level of the presented Programmer. The level that is being set must be lower than or equal to the level of the Programmer itself.

## 4. Access (1*)

Access can be gained by any valid Remote Programmer; there is no need for a separate user tag.

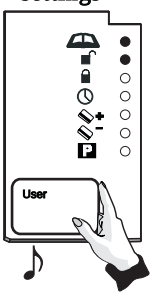
### Access 1

**1. Program Mode**



**2. Access**

**3. Access mode I or II depending on settings**

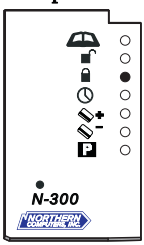



**4. Open time**

**Outputs: Inactive**
**Inputs: Inactive**

**Relay activated**

**5. Resume normal operation**




**Relay deactivated**

Remarks:

- For security reasons only legitimate Programmers of user programmer level are normally allowed access. Higher level Programmer will only be allowed access, when the N-300 is set at a higher level than 0, for purposes of test and maintenance.
- After a certain period of inactivity, the N-300 will activate its alarm and resume normal operation. This period, known as Overall Time-out, is set to 30 seconds as factory default.

Possible errors:

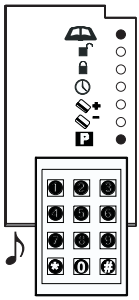
- When presenting the programmer an error tone sounds: the Programmer is not present in the memory of the N-300, or the “Protect” option was set (see Chapter 12).
- When selecting the step indicated after pressing the Enter key, an error tone sounds: the Programmer is not a User Programmer, while the N-300 is set at level 0.

## 5. Add Tags by Number - status I (2*)

In standard Access mode, the N-300 will not grant access to a tag unless its ID number is present in memory. A tag can be added to memory with a Master or a Remote Programmer, providing the tag itself is available for presentation. If the tag is not available, e.g. because the person carrying it is not present, it can still be added by entering its Add level and number with a legitimate Remote Programmer.

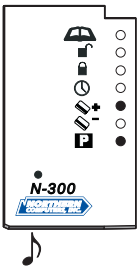
# Add tags by number

1. Program mode



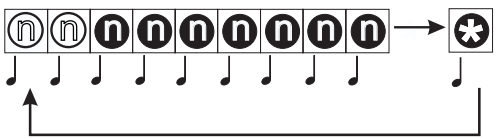
2. Enter Add mode

3. Add mode



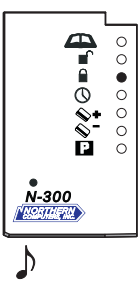

4. Set the Add level

5. Enter tag number (repeat for each new tag at this Add level)

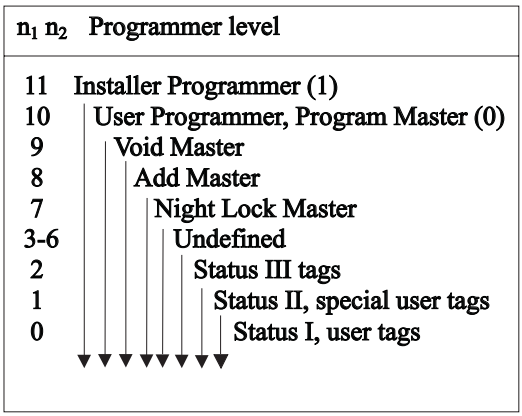


6. Exit Add mode

7. Resume normal operation




Outputs: Inactive
Inputs: Inactive




Remarks:

- Any tag can be added, unless it is already present in memory.
- N-300 memory can hold up to MAX ID numbers (including at least 3 Masters and/or Remote Programmers)
- Leading zeroes of the ID number (step 5) need not be entered e.g. for ID number “0042062” entering “42062 *” is sufficient.
- It is not permitted to add at higher levels than the presented tag or Programmer is authorized for (see above diagram).
- After a certain time of no operation the N-300 will active its alarm after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.

- Keep records of the ID numbers and functions of all tags and Programmers, and of their users. In case of loss, tags can be removed from memory by number, using Remote Programmer function 9*.

Possible errors:

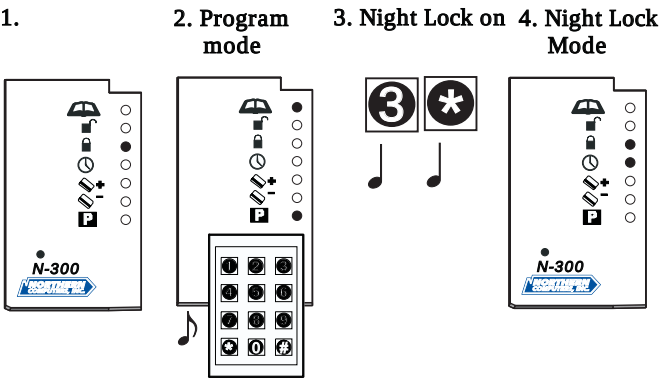
- When presenting the Programmer, an error tone sounds: the Programmer is not present in the N-300 memory, or the "Protect" option was set (see Chapter 12).
- After the Add level is entered, an error tone sounds, and normal operations resumes; the presented Programmer is not allowed to erase at the entered level (see above diagram); check the Programmer's level.
- After entering a new tag number, an error tone sounds: the memory is full (see Chapter 22.1), or the tag number is already present in memory. In the latter case, a wrong number may have been entered; if not, the records should be checked to determine holder and status of the tag.
- After the ID number has been entered, it is difficult to correct typing errors.
- Access is refused to a newly entered tag. Most likely a typing error has been made while entering the new tag's number. It is not possible to locate such a faulty number. Type the number again.

## 6. Set Night Lock mode on/off (3*)

The Night Lock mode is a special mode in which the normal tags are denied access.

The Night Lock triggers output IO4, intended for external control, e.g. to switch on an external alarm system or to control the mains for lighting or for other electrical devices. Night Lock mode can be switched on and off by a Remote Programmer, and/or via an external control (see N-300 User Manual). In Night Lock mode, a User level Remote Programmer can be used to gain access, while switching the N-300 to Access mode (level 0), just like a Night Lock Master.

### Set Night Lock mode on



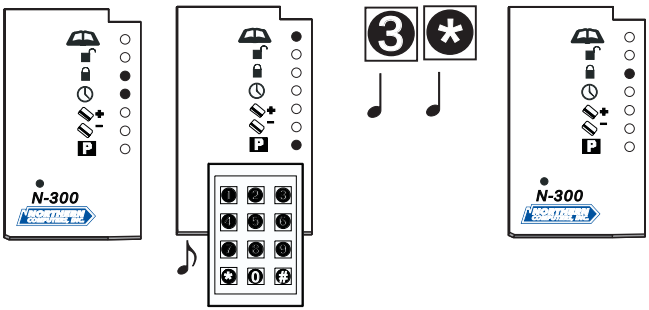

Outputs: Inactive
Inputs: Inactive

IO4 activated

## Set Night Lock mode off

**(If at level 0 and not user Programmer)**

1. Night Lock mode
2. Program mode
3. Night Lock off
4. Normal Operation

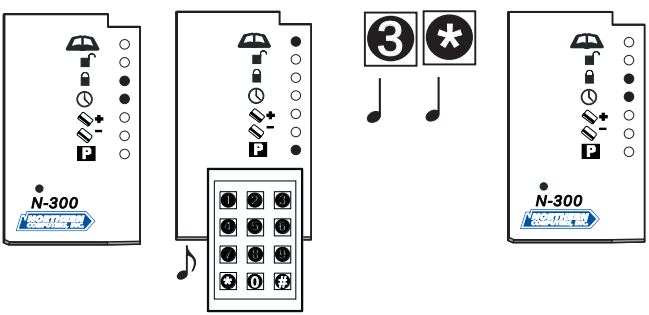



Outputs: IO4 active
Inputs: Inactive

IO4 deactivated

## Set Night Lock mode off (If at level 0 and User Programmer or at a higher level and higher Programmer)

1. Night Lock mode
2. Program mode
3. Night Lock off
4. Normal Operation




Outputs: IO4 active
Inputs: Inactive

IO4 deactivated
Relay activated

Remarks:

- Any Programmer at any level is allowed to perform this operation, except when the "Protect" option was set, in which case only a User Programmer will be valid.
- Switching off Night Lock mode is similar to presenting a Night Lock Master in that access will be granted, however, this will be effective only with a User Programmer set at operation level 0 or with any other Programmer set at a higher level.
- After a certain period of no operation the N-300 will active its alarm, after which it will resume normal operation, this time period is known as overall time-out, and is set to 30 seconds by default.

Possible errors:

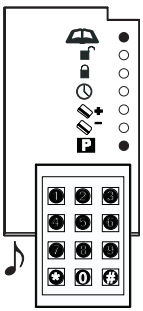
- When presenting the programmer an error tone sounds; the programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- Night Lock set/reset is being performed but no access was granted; the Programmer is not regarded as valid for gaining access at the current operation level. Check whether the Programmer is a User Programmer at level 0, or if not, whether the operation level was set to zero.

## 7. Add tags - status I (4*)

To be granted access by the N-300, tags first have to be added. With the Remote Programmer new tags can be added as they are presented. After this step the new User tags will be granted access in Access mode, i.e. when only the Closed LED is on.

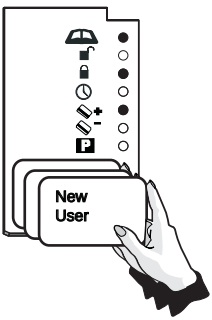
## Add new User tags (status I)

1. Program mode



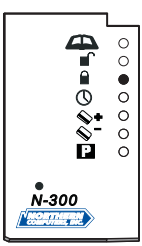
2. Enter Add mode


3. Add new User tags (present each new tag)




4. Add mode off


5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- Any tag can be added, except those that are already present in memory.
- With an N-300-PRG Remote Programmer, tags can be added even in Night Lock mode; with an Add Master this is not possible.
- Note the number of the tag and the name of the user. In case of loss, tags can be removed from memory by number, using a Remote Programmer.
- Up to 2,000 minus the number of Master tags and/or programmers (minimal 3) can be added.
- After a certain time of no operation the N-300 will active its alarm after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- When entering programming step" 4*," an error tone sounds, and the N-300 resumes normal operation: the Programmer is present in memory, but is not regarded as valid to add tags to memory. Check the operation level that was set, by using "93 *" (see Chapter 22.3). When set to 0, only a User Programmer is regarded as valid. The level of the Programmer can be examined with "94*" (see Chapter 22.4).
- While presenting new tags an error tone sounds, resuming normal operation; the tag was already present in memory: check its function by presenting it.

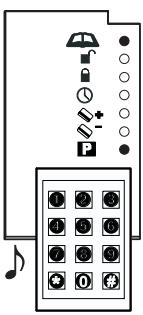
· The memory is full: check the number of free positions with “92 *” (see Chapter 22.2).

## 8. Void tags (5*)

To deny access to old tags or Programmers, they must be removed from memory. After this step, which frees up their space in memory, they will be regarded as unknown by the N-300.

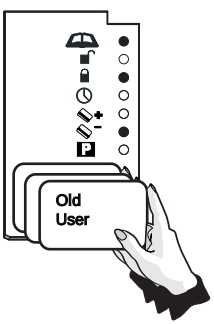
### Void tags

1. Program mode



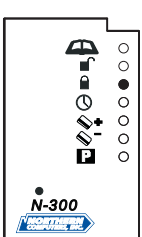
2. Enter Void mode


3. Void old tags and Programmers (present each one)




4. Void mode off


5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- Any tag or Programmer in memory can be voided, except for Programmers that have a higher level than the presented Programmer.
- After a certain time of no operation the N-300 will active its alarm after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.
- Keep records of the ID numbers and functions of all tags, and of the names of their users. In case of loss, tags can be removed from memory by number, using a Remote Programmer.

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- While presenting tags or Programmers to be voided an error tone sounds, resuming normal operation; the tag presented as an old tag or Programmer was unknown in memory; confirm this, if necessary, by checking its function in normal mode: when unknown, an error tone should be heard. In case a Programmer was presented it is also possible that it is present in memory but has a higher level than the Programmer being applied to enter into this mode: check the Programmer level(s) with "94 *."

## 9. Add Special User tags - status II (7*)

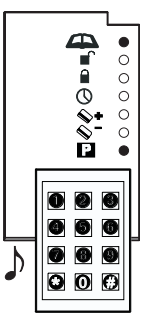
The N-300 provides for adding specific tags, referred to as Special User tags, which are granted access both in Access mode and in Night Lock mode. These Special User

tags can be added directly, without setting Night Lock mode first.

After this step the new Special User tags will be granted access at any time, regardless of the status of the Night Lock LED.

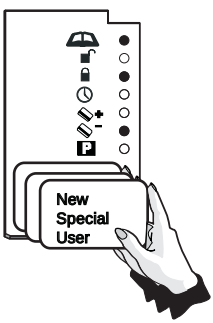
## Add new Special User tags (status II)

1. Program mode



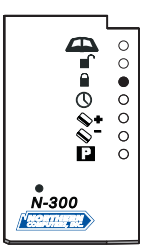
2. Enter Add mode


3. Add new Special User tags (present each one)




4. Add mode off


5. Resume normal operation




Outputs: Inactive

Inputs: Inactive

Remarks:

- Any tag can be added, except those that are already present in memory.
- Up to MAX minus the number of masters tags and/or programmers (minimal 3) can be added.
- After a certain time of no operation the N-300 will active its alarm after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.
- Keep records of the ID numbers and functions of all tags, and of the names of their users. In case of loss, tags can be removed from memory by number, using a Remote Programmer.

Possible errors:

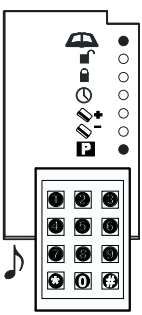
- When presenting the programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- When entering the programming step “7 *” an error tone sounds, resuming normal operation; the Programmer is present in memory, but is not regarded as valid to add tags to memory. Check the operation level that was set by “93 *": when set to 0, only a User Programmer is regarded as valid. The level of the Programmer can be examined with “94 *"
- While presenting new tags an error tone sounds, resuming normal operation; the tag was already present in memory. Check its function by presenting it.
- The memory is full: check the number of free positions with “92 *.”

## 10. Add Night Lock Only tags - status III (8*)

Sometimes it may be necessary to grant one group of users access at times when another group is to be denied access and vice versa. For example, security personnel or cleaning staff may have access only outside normal office hours and during holidays, when the N-300 would be set to Night Lock mode. In such cases, the Night Lock status functions as a discriminative (time) zoning system.

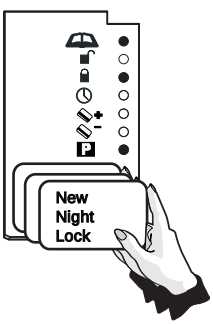
### Add new Night Lock Only tags (status III)

1. Program mode



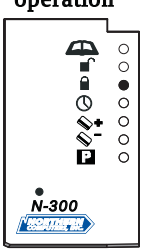
2. Enter Add mode for status III

3. Add new Night Lock Only tags (present each one)




4. Add mode off

5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- Any tag can be added, except those tags that are already present in memory.
- Up to MAX minus the number of Masters tags and/or Programmers (minimal 3) can be added.
- After a certain period of no operation the N-300 will activate its alarm, after which it will resume normal operation. This period is known as Overall Time-out, and is set to 30 seconds as default.

Possible errors:

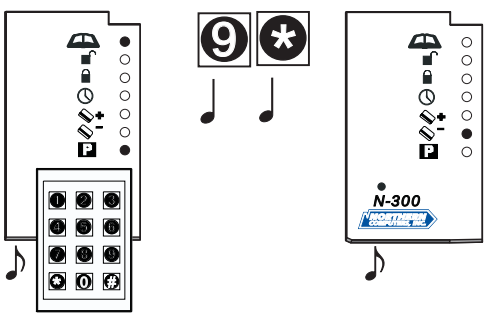
- When presenting the programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- When entering the programming step "8 *" an error tone sounds, resuming normal operation; the Programmer is present in memory, but is not regarded as being valid to add tags to memory. Check the operation level that was set by "93 *": when set to 0, only a User Programmer is regarded as valid. The level of the Programmer can be examined with "94 *."
- While presenting new tags an error tone sounds, resuming normal operation; the tag was already present in memory: Check its function by presenting it.
- The memory is full: Check the number of free positions with "92 *" (see Chapter 22.2).

## 11. Voiding tags by number (9*)

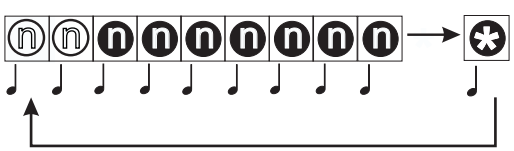
To use Remote Programmer to void tags or Programmers, for instance because they are lost, stolen or so severely damaged they cannot be used, the specific ID number must be known. For this reason it is important to keep records of all added tags, Masters and Remote Programmers.

### Void tags by number

1. Program Mode
2. Enter Void mode
3. Void mode

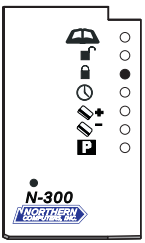



4. Enter tag number (repeat for each old tag)



**5. Exit Void mode**

**6. Resume normal operation**




**Outputs: Inactive**
**Inputs: Inactive**

Remarks:

- Leading zeroes of the ID number n1 to n9 need not be entered e.g. for ID number “004290672” entering “4290672 *” would be sufficient.
- If the User Programmer itself is missing or too badly damaged, the user should request the installer or supplier to perform this operation. A new User Programmer should be added as soon as possible.
- Any tag or Programmer in memory can be voided, except for those Programmers that have a higher level than the Programmer used to Void by number.
- After a certain time of no operation the N-300 will active its alarm after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.
- A Programmer cannot void itself.
- Keep records of the ID numbers and functions of all tags, and of the names of their users. In case of loss, tags can be removed from memory by number, using a Remote Programmer.

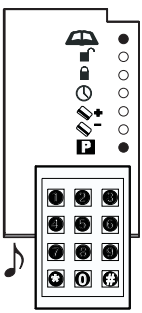
Possible errors:

- When presenting the programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- After entering the number of the tag or Programmer to be voided an error tone sounds, and normal operation resumes: the number entered was not present in memory, or it was the Programmer's own number. Check to make sure the number is correct. If the ID number belongs to a Programmer, it is also possible that it is in memory at a higher level than the applied Programmer: check the Programmer level (see Chapter 22.4).

# 12. User functions

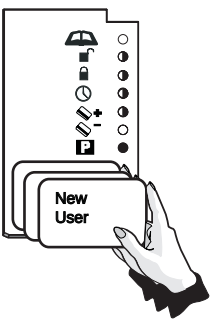
## User Options mode (10*)
## Display/ set User Options

1. Program mode



2. Enter User Option mode


3. Display current User Option settings

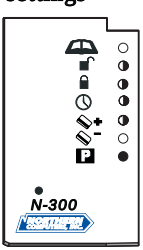



Outputs: Inactive
Inputs: Inactive

## Set new User Options

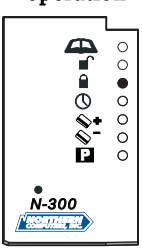
4. Type the sum of the Options numbers


5. Display new User Option settings




6. Wait one second

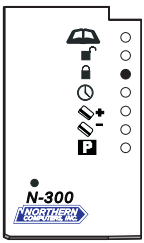

7. Resume normal operation




Outputs: Inactive
Inputs: Inactive

4. Exit User Options mode

5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

### Protect option

The “Protect” option limits Program mode to the User Programmer. Any other Programmers in memory, even if they have higher levels (i.e. level 1 to 4), are prevented from entering Program mode. As factory default the Protect option is off.

“Protect” can be bypassed only when re-powering the system. Programmers added at higher levels are intended for backup and maintenance purposes only, and will not be able to gain access. The User Programmer cannot erase these higher-level Programmers from memory.

### Read indication option

If this option is on, LED 1 will light when a tag or Programmer is read or identified.

The User options can be used in any combination. Individual “on” values of the options are: “1” for Protect and “4” for Read indication. When the options are to be combined, the individual values must be added. For example, when setting both Protect and No Read, enter 5, (1 + 4).

| LED | Display of option | | Add values of "n" |
|---|---|---|---|
| 2 ◗ | Off Protect option off | On: Protect option on | 0 when off, 1 when on |
| 3 ◗ | Reserved for future | | 0 when off, 2 when on |
| 4 ◗ | Off: No Read indication | On: Protect option on | 0 when off, 4 when on |
| 5 ◗ | | | |
| 6 ◗ | | | |
| 7 ◗ | | | + |
| | | | Total is "nn" |

Remarks:

- "Protect" does not disable tags and Programmers added at level 0, even if this was done prior to installation. For this reason, in cases where the N-300 has been newly installed with a User Programmer (level 0), the user is strongly recommended to erase memory first at level 0 with "99* 10*" (see Chapter 24), before performing any other operation, unless otherwise agreed to with the N-300 supplier. This operation will disable access by any unknown and unauthorized tags and Programmers that were added at level 0 before installation.

Possible errors:

- When presenting the Remote Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set. Bypass it during Power-on to recover the situation.

## 13. Setting the Open Time-out (11*)

The Relay and IO3 output of the N-300 can be set to be driven during a certain number of seconds, called the Open Time-out, whenever access is granted.

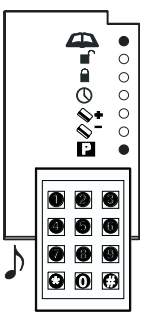
This time period is adjustable from 1 to 255 seconds. The Open Time-out factory default is 2 seconds. For testing

purposes 4 seconds for a normal door and 20 seconds for a gate are recommended.

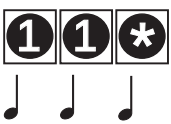
The Open Time-out is independent from the Close Time-out. In Access mode II, the Relay and IO3 are switched off, i.e. inactive, when the door or gate is closed, even before the Open time has elapsed (see N-300 User Manual, 3.5.2 case 1).

## Program Open Time-out

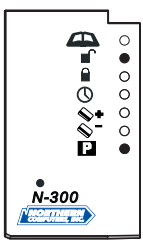
1. Program mode



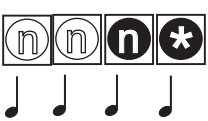
2. Enter Open Time-out Mode




3. Open Time-out mode



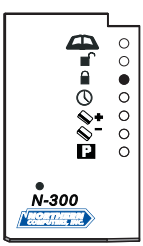

4. Type the Open Time-out period




Outputs: Inactive

Inputs: Inactive

5. Resume normal operation



Remarks:

- The value of "n1 n2 n3" must be within the range of 1 to 255.
- Any Programmer at any level is allowed to perform this operation, except when the "Protect" option is set, in which case only a User Programmer will be valid.
- After a certain time of no operation the N-300 will active its alarm after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.

Possible errors:

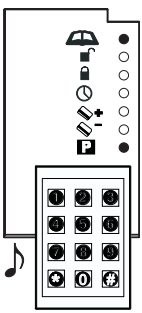
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- After Open time was entered an alarm tone sounds; check whether the correct mode and value were entered. Enter once more the correct mode and value.

## 14. Setting the Close Time-out (12*)

The N-300 has a special timer that is intended to check whether the gate or door has been closed within a specific time period, adjustable from 0 seconds up to 255 seconds. A period of 4 seconds for a normal door, and 20 seconds for a gate are recommended. The Close Time-out factory default is 0 (inactive, Access mode I). Any other value will activate the option (Access mode II).

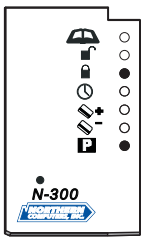
## Program Close Time-out

1. Program mode

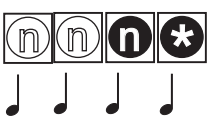


2. Enter Close Time-out Mode


3. Close Time-out mode



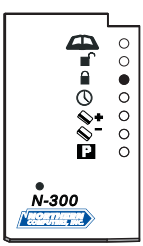

4. Type the Close Time-out period




Outputs: Inactive

Inputs: Inactive

5. Resume normal operation




Remarks:

- The value of “n1 n2 n3” must be within the range of 0 to 255, “0” meaning that the Close Time-out and Door Contact Checking are disabled.

- Any programmer at any level is allowed to perform this operation, except when the "protect" option was set, in which case only a user programmer will be valid.
- After a certain time of no operation the N-300 will active its alarm, after which it will resume normal operation, this time known as overall time-out is set to 30 seconds as default.

Possible errors:

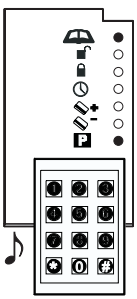
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- After the Close time was entered a continuous alarm sounds; the Open led is flashing indicating a door open situation. Check whether the door contact is connected and closed when connected properly, IO1 should have ground potential. In case of a defective door contact or cable, the continuous alarm can be disabled by bypassing this mode, when presenting a Programmer during re-powering the N-300. Once in Program mode, set the Close Time-out time to "0."
- After the Close Time was entered, an alarm tone sounds, and normal operations resumes: check whether the correct mode and value was entered. Redo the operation.

# 15. Adding the Night Lock Master (13*)

The N-300 has a special mode in which normal tags cannot gain access, called the Night Lock mode. This mode can be switched on and off by a Night Lock Master, or alternatively with a Remote Programmer by entering “3*”.

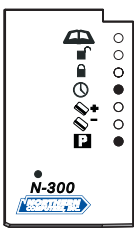
## Add new Night Lock Master

1. Program mode

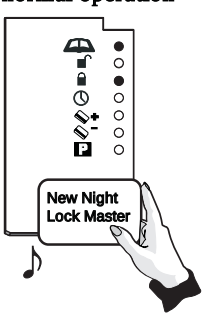


2. Enter Night Lock Master Add mode


3. Night Lock Add mode




4. Add New Night Lock Master, resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- At operation level 0, non-User Programmers are not allowed to program any Masters.
- Any tag can be made a Master, even if it is already present in memory when declared.
- When using more than one N-300, it is advisable, for easy management, to use the same Night Lock Master for all Readers.
- Note the number of the Night Lock Master tag. In case of loss, a tag can be removed from memory by number with a Remote Programmer (see Chapter 11).
- To ensure access at all times, after a certain time of inactivity while in program mode (set to 30 seconds as default time-out), the N-300 sounds an error tone, and resumes normal operation.
- Keep records of the ID numbers and functions of all tags, and of the names of their users. In case of loss, tags can be removed from memory by number, using a Remote Programmer.

Possible errors:

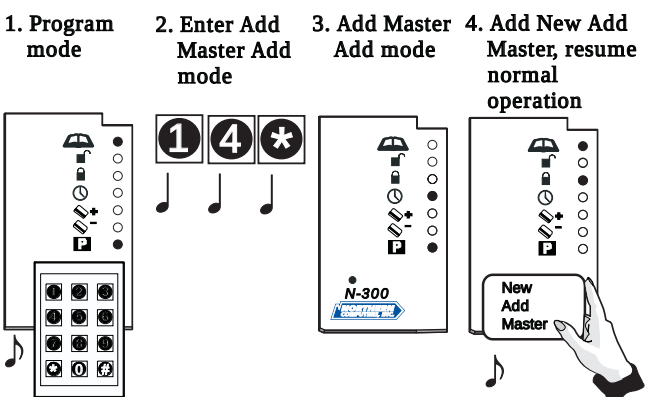
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- When entering programming step “13 *” an error tone sounds; the presented Programmer is not a User Programmer, the operation level however is set to user ("0"): use another Programmer or change the level with “0 * n *” (see Chapter 3).
- When presenting the tag an error tone sounds; memory is full. Check the number of free positions (see Chapter 22.2).

## 16. Program Add Master (14*)

The N-300 allows user tags to be added after presentation of an Add Master. This can also be achieved with a Remote Programmer by entering “4 *” (see Chapter 7).

It can be useful to have more than one tag privileged to perform this function. For instance, a particular person, or a specific group of persons, authorized to work in certain rooms or areas where N-300 units are applied, might carry a separate Master, which would not be valid within other rooms or area’.

### Add new Add Master




Outputs: Inactive
Inputs: Inactive

Remarks:

- At normal operation level (level 0), non-user programmers are not allowed to program any masters.
- Any tag, known or unknown can be programmed as master.
- When using more than one N-300, it is advised for ease of management, to use the same Add master for these functions on other readers.
- Attach a label to the Add Master, mentioning its function to avoid mistakes.
- To ensure access at all times, after a certain time of inactivity while in program mode (set to 30 seconds as default time-out), the N-300 sounds an error tone, and resumes normal operation.
- Keep records of the ID numbers and functions of all tags, and of the names of their users. In case of loss, tags can be removed from memory by number, using a Remote Programmer.

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- When entering the programming step “14*” an error tone sounds; the Programmer being applied is not a User Programmer, the operation level however is set to user (“0”): change programmer or change the level with “0* n*.”
- When presenting the tag an error tone sounds; memory is full. Check the number of free positions with option “92*.”

## 17. Program Void Master (15*)

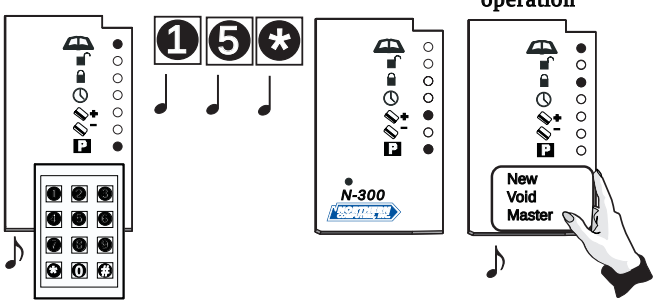
The N-300 allows user tags to be removed from memory by applying a Void Master.

The same can be achieved with a Remote Programmer by entering “5*” (see Chapter 8).

It can be useful to have more than one tag privileged to perform this function. For instance, a particular person, or a specific group of persons, authorized to work in certain rooms or areas where N-300 units are applied, might carry a separate Master, which would not be valid within other rooms or areas.

### Add new Void Master

1. Program mode
2. Enter Void Master Add mode
3. Void Master Add mode
4. Add New Void Master, resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- Any tag, known or unknown, can be programmed as master.
- When using more than one N-300, it is advised for ease of management, to use the same Void Master for these functions on other readers.
- Attach a label to the Void Master, mentioning its function to avoid mistakes.
- To ensure access at all times, after a certain time of inactivity while in program mode (set to 30 seconds as default time-out), the N-300 sounds an error tone, and resumes normal operation.
- Keep records of the ID numbers and functions of all tags, and of the names of their users. In case of loss, tags can be removed from memory by number, using a Remote Programmer.

Possible errors:

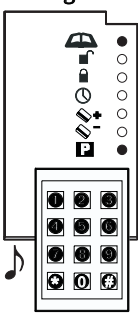
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- When presenting the tag an error tone sounds; memory is full. Check the number of free positions with using "92 *."

## 18. Copy Remote Programmer (16*)

Copy Remote Programmer allows new Programmers to be added to memory, at the same level as the original programmer.

## Copy Remote Programmer

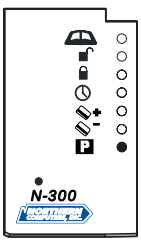
1. Program mode (original Programmer)



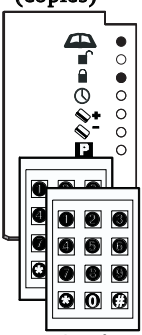
Original

2. Enter Copy Programmer mode


3. Copy Programmer mode

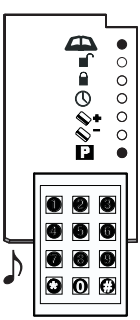



4. Add new Remote Programmers (copies)



New Copies

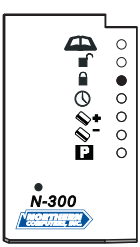
5. Program mode



Original

6. Exit Program mode


7. Resume normal operation




Outputs: Inactive

Inputs: Inactive

Remarks:

- Any Programmer can be added to memory, provided it was not present in memory with a higher level than the original one, “downgrading” by a lower level tag is regarded as an illegal operation.
- Attach a label to the programmer, mentioning its function/level to avoid mistakes.
- To ensure access at all times, after a certain time of inactivity while in program mode (set to 30 seconds as default time-out), the N-300 sounds an error tone, and resumes normal operation.
- Keep records of the ID numbers and functions of all tags and Programmers, and of their users. In case of loss, tags can be removed from memory by number, using Remote Programmer function “9*.”

Possible errors:

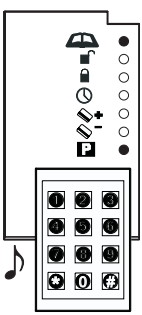
- When presenting the (original) Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- When presenting the new Programmer an error tone sounds; the Programmer might already be in memory at a higher level; it is not allowed to override this level.
- The memory is full: check the number of free positions. This can be examined with “92 *” (see Chapter 22.2).

## 19. Program Overall Time-out (17*)

The N-300 has a timer which, in Program mode operations, i.e. Adding, Voiding, etc., is used to count the number of seconds since the last key-press on the Remote Programmer. If the count exceeds a pre-set value, the N-300 sounds an alarm and resumes normal operation. This time period, the Overall Time-out, is adjustable from 5 to 255 seconds. The default Overall Time-out is 30 seconds.

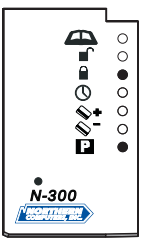
### Program Overall Time-out

**1. Program mode**



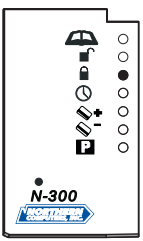
**2. Enter Overall Time-out Mode**


**3. Overall Time-out mode**




**4. Type the Overall Time-out period**


**5. Resume normal operation**




**Outputs: Inactive**
**Inputs: Inactive**

Remarks:

- The value of "n1 n2 n3" must be within the range of 5 to 255.
- Any programmer at any level is allowed to perform this operation, except when the "protect" option was set, in which case only a User Programmer will be valid.
- After a certain time of no operation the N-300 will activate its alarm, and resume normal operation. The Overall Time-out will then remain as set previously, or as defaulted (30 seconds).

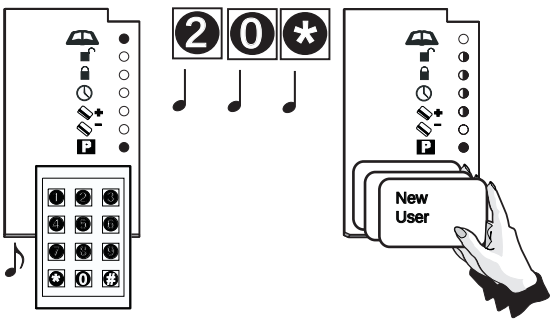
Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- After the Overall time was entered an alarm tone sounds, resuming normal operation; check whether the correct mode and value was entered. If not, type the correct mode and value.

# 20. Installer (20*)

## Display/Set Program Installer Options

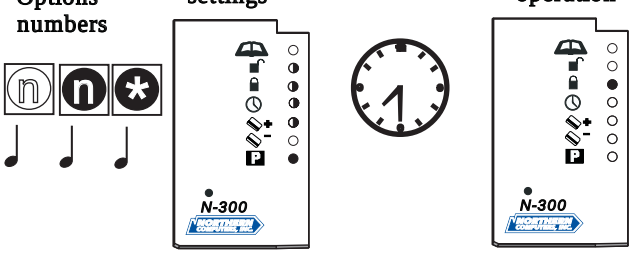
1. Program mode
2. Enter Installer Option mode
3. Display current Option settings




Outputs: Inactive
Inputs: Inactive

## Set new Installer Options

4. Type the sum of the Options numbers
5. Display new Option settings
6. Wait one second
7. Resume normal operation




Outputs: Inactive
Inputs: Inactive

## Program installer options

The following programming step, starting with “2", is intended for installers and/or dealers.

At level 1 (Installer), three options are available to change the normal mode of operation of the N-300;

### 1) Private

Switches the N-300 into a special operation mode, in which it will grant access to only one user tag at a time, after which it will go into “Lock” status. After that, no other tags are accepted, until the “Lock” status is switched off. Lock status is similar to Night Lock mode and uses the same LED; IO4 is also activated. However, the Lock status is not memorized in EPROM, so after a power failure or a deliberate power-off the N-300 always resets to the latest status. By connecting IO4 to an external relay circuit, an external device can be driven, for instance a light indicating “Lock” status.

The Lock can be switched off as follows:

a) Push the Regress button (see below).

b) Present the same user tag again.

For safety, and in case of emergency, access can still be gained as follows:

a) Present a Night Lock Master.

b) Turn the power off and on and present any user tag.

Applications: Small (safe) deposits, mailboxes, lavatories, showers, rooms in hospitals or clinics, protected mains, control switches or computer equipment etc.

### 2) Public

Disables the validity check for the presence in N-300 memory of the presented user tag's numbers, thus allowing access to any tag, regardless of whether is in memory or not. The functions of Remote Programmers and Master Tags will remain unchanged.

Applications: Large (safe) deposits, parking lots and front doors of large hotels, public institutions or companies etc. ( > MAX users, in conjunction with Private option).

### 3) Regress

Allows for a push button, mounted inside a separate room, to be connected. This push button can be used to grant passage when exiting. When set, this option will disable the external Night Lock control, which uses the same input: IO2. The method of access is controlled in a similar way as normal access i.e. using Open Time-out- and Close Time-out, starting from the moment when the button was pushed.

Regress is low active i.e. access is granted when IO2 is connected to ground potential for a short while.

Applications: Anywhere where the N-300 is not installed for dual reading (applying a ferrite rod) or where the inside door knob or handle is fixed and door supervision (closed contact) is needed.

The Installer options can be used in any combination. Especially when options 1 and 2 are combined, they are suited for use in applications like public save deposits, money dispensers, showers, lavatories etc.

The individual values of the options are: “1” for Private, “2” for Public, “4” for Regress and “8” for Low Power. When the options are to be combined, the individual values must be added. For example, when setting both Public and Regress, type 6, (2 + 4); when setting Private and Public and Low Power, type 11 (1 + 2 + 8).

| LED | Display of option | | Add values of “n” |
|---|---|---|---|
| 2 ◗ | Off: Private Option off | On: Private option on | 0 when off, 1 when on |
| 3 ◗ | Off: Public Option Off | On: Public Option onn | 0 when off, 2 when on |
| 4 ◗ | Off: Regress Option off | On: Regress option on | 0 when off, 4 when on |
| 5 ◗ | | | |
| 6 ◗ | | | |
| 7 ◗ | | | + |
| | | | Total is “nn” |

Remarks:

- The value of “n” must be within the range of 0 to 15.
- Any programmer except the user programmer at any level except level 0, is allowed to perform this operation. When the “protect” option was set, first reset this option or bypass it during power on, since “protect” will only accept the user programmer(s).
- After a certain time of no operation the N-300 will activate its alarm, after which it will resume normal operation.

Possible errors:

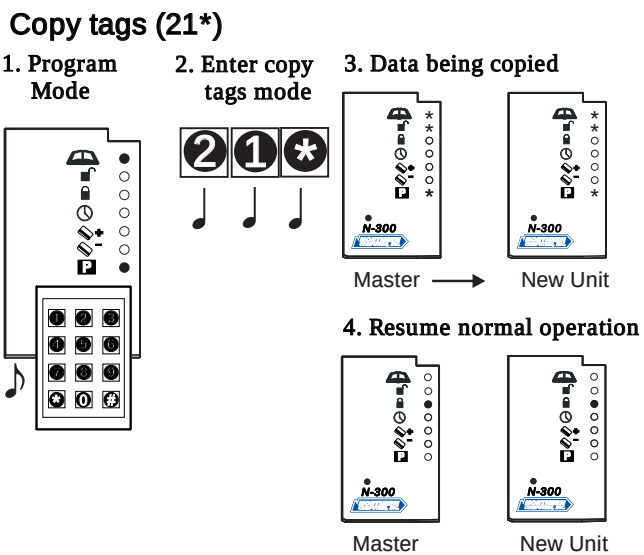
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- After program step “20 *” was entered, the N-300 sounds an alarm tone, and resumes normal opera-

tion. Check that the operation level of the N-300 is not set at 0 with “93 *", and that the Programmer is not a User Programmer (with “94 *").

- After typing the option value “n", an alarm sounds resuming normal operation; re-type the correct value.

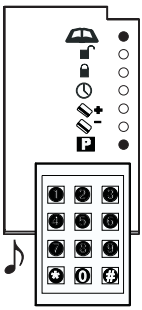
### Copy tags (21*), Copy settings (22*), Copy tags + settings (23*)

When installing a new unit at the same site or within the same system, the N-300 is equipped with a convenient feature to copy its data to another (empty) unit. e.g.: In case the first unit is already installed at the front door and the system is extended with a 2nd or 3rd unit at the back door.



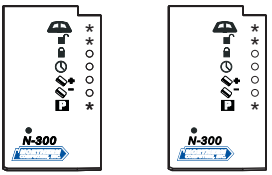
## Copy settings (22*)

1. Program Mode



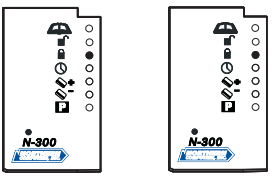
2. Enter copy settings mode

3. Data being copied



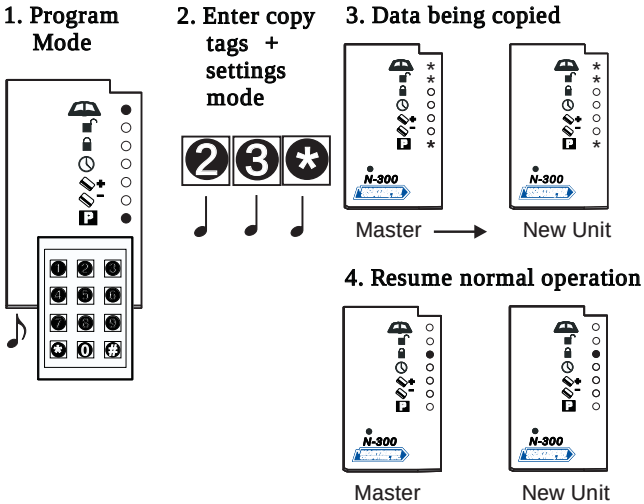

Master → New Unit

4. Resume normal operation




Master New Unit

## Copy tags and settings (23*)




Remarks:

- In case the second unit already has tags stored in its memory, these numbers will not be deleted.
- Tags which the master and the new unit have in common, will obtain the same status as the master.

## 21 Reception Quality Display mode (29*)

The N-300 operation is based on transmission and reception of RF signals. Therefore, depending on surrounding conditions, its operation may occasionally suffer from electrical interference or disturbance, in particular with external antennas.

In this mode the N-300 bottom six LED's function as a VU meter, to monitor the signal to noise ratio, as a measure of the quality of the signal reception. The readout is based on a linear percentile scale, in steps of 14%.

Remarks:

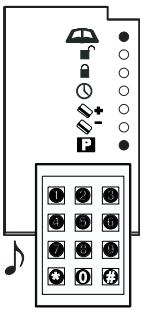
- This mode is not available on Programmers below Installer level.
- Optionally. LED 1 can be used to indicate detection of a tag; the factory default for this is: On.
- With no tag or Remote Programmer within read range, LED1-7 off indicates less than 14% noise and 0% signal, whereas LED 2-7 on indicates 100% noise and 0% signal. Reliable tag detection requires less than 40% noise (3 or fewer LED's on).
- With a tag within read range, LED 2-7 off indicates less than 14% signal and more than 86% noise, whereas LED 2-7 on indicates more than 86% signal and less than 14% noise. Reliable tag detection requires a signal to noise ratio of 70% or higher, with the tag in the RF field (5 or more LED's on).

Possible errors:

- None listed

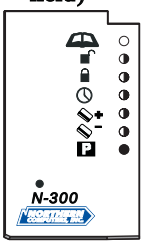
## Display Reception Quality (29*)

1. Program mode

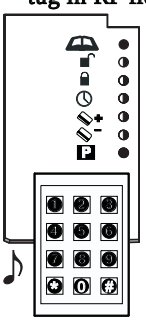


2. Enter Display Reception Quality mode


3. Display noise ratio (no tag or Programmer in RF field)

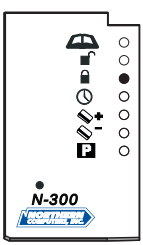



4. Display signal to noise ratio (with Programmer or tag in RF field)



5. Exit Program mode


6. Resume normal operation




Outputs: Inactive

Inputs: Inactive

# 22. Miscellaneous

The following programming steps, starting with “9”, are intended for installation, diagnostics and testing purposes.

## 22.1 Count the tags in memory (91*)

The tag count can be useful to determine whether new tags were added, especially at installation time.

Remarks:

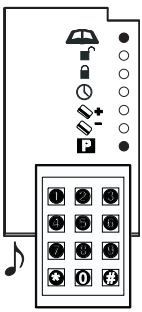
- The tag count takes about 0.31 second per tag number, so for a full memory the total counting operation will take 10 minutes.
- Programmers at the same level or lower are counted as well.

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- The memory is completely erased but the tag count is still one or higher. The N-300 has counted one or more Remote Programmer(s) as occupied space(s).

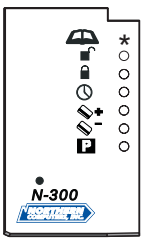
## Count tags (91*)

1. Program mode



2. Enter Count Tags mode


3. Count Tags mode (LED 1 flashes)

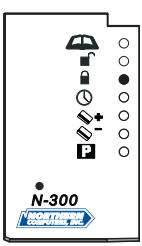



4. Count in progress (one beep for each counted tag)


Outputs: Inactive

Inputs: Inactive

5. Resume normal operation

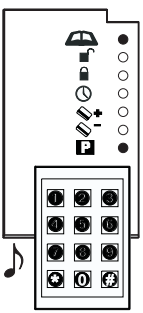


## 22.2 Count number of free spaces (92*)

The space count operation is useful to determine how much space is left in memory. As stated earlier, the user is advised to carefully register all tags in memory, to prevent illegal use of lost tags.

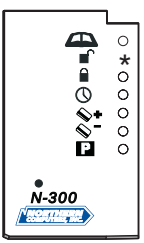
### Count open spaces (92*)

1. Program mode



2. Enter Count Spaces mode


3. Count Spaces mode (LED 2 flashes)

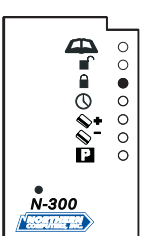



4. Count in progress (one beep for each counted space)

♪♪♪♪♪...♪

1 2 3 4 5...n

5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- The count per space takes about 0.31 seconds. For an (almost) empty memory the total operation will take 10 minutes.
- The maximum memory space is MAX, the presence of non-User Programmers in memory (for backup/ maintenance purposes) decrease the available spaces to 1997 or 1998.

Possible errors:

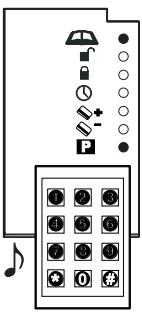
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- The memory is almost full but according to registrations there should be more positions left than are counted; this difference may be caused by the presence of non-User Programmers that were added prior to installation. Consult your supplier, if necessary.

## 22.3 Show Operation Level (93*)

The Show Operation Level function is useful to determine whether the right level was set, specifically after installation, when the level should be set to “0.”

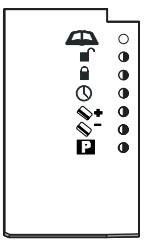
### Show Operation level (93*)

1. Program mode



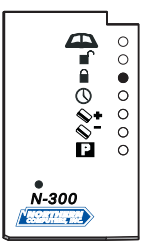
2. Enter Show Option mode


3. One of LED 2-6 displays current Operations level



4. Wait one second

5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

| Display of Level LED | | |
|---|---|---|
| 2 | ◗ | On: Normal Operation level |
| 3 | ◗ | On: Installer level |
| 4 | ◗ | On: Dealer level |
| 5 | ◗ | On: Distributor level |
| 6 | ◗ | On: Manufacturing level |

Remarks:

- After its installation, check whether the N-300 has been set at level “0.” If not, illegal access might be gained by Remote Programmers intended for maintenance/backup.

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- The N-300 has been installed but it doesn"t read level “0"; consult with your installer/dealer, since access through backup programmers might be gained when not installed at level 0.

## 22.4 Show Programmer Level (94*)

The Show Programmer Level function reads the level at which the programmer in question was added to memory.

When more than one Programmer and one or more N-300 are in use, it is recommended to use the Programmers at one and the same level. Also, a label indicating the function ("user", “installer", etc.) and other pertinent information should be attached.

The Read Programmer operation can be used to reconfirm its level.

| Display of Level LED | | |
|---|---|---|
| 2 | ◗ | On: User Programmer |
| 3 | ◗ | On: Installer Programmer |

Remarks:

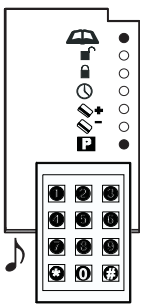
- After installation, check whether the programmer has been installed at level “0.” If not, no access-related matters can be managed once the N-300 is installed (at level “0").

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).

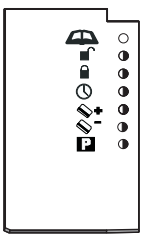
## Show Operation level (94*)

1. Program mode



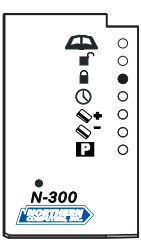
2. Enter Show Programmer level mode

3. One of LED 2-6 displays current Programmer level



4. Wait one second

5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

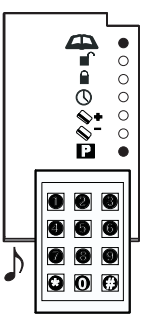
· The Programmer supplied should be at user level but doesn"t read level “0"; consult with your installer/dealer since no access related matters can be managed once the N-300 is installed (at level 0).

## 22.5 Show Version ID (95*)

The Show Version ID function reads the specific version of the N-300.

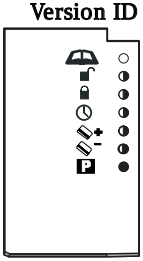
### Show Version ID (95*)

1. Program mode



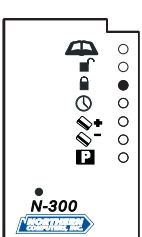
2. Enter Show Version ID mode


3. One of LED 2-5 displays current Version ID



4. Wait one second

5. Resume normal operation




Outputs: Inactive
Inputs: Inactive

Version ID displays

| LED | Ver. 1.2x | Ver. 1.3x |
|---|---|---|
| 2 | ● | ❍ |
| 3 | ● | ❍ |
| 4 | ● | ❍ |
| 5 | ❍ | ● |
| 6 | ❍ | ❍ |
| 7 | ● | ● |

Remarks:

- When in doubt about any procedure described in this manual, compare the Version of the manual with the ID of the N-300. In case of difference, contact your supplier.

Possible errors:

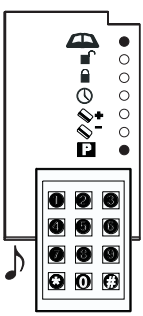
- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the “protect” option was set (see Chapter 12).
- The version shown is not described above or elsewhere in any manuals (or updates); the user should apply to the installer/dealer to receive up-to-date documentation; slight differences may exist between different versions of the documentation and the actual installation.

# 23 Diagnostics (98*)

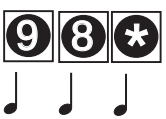
Diagnostics initiates a complete self-test of the N-300 internal and external functions, checking for possible defects or faulty installation.

## Diagnostics (98*)

1. Program mode



2. Enter Diagnostics mode

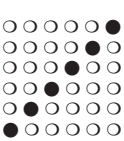



3. Relay test: only if not normal operation level

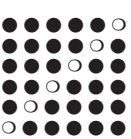
**If Operation level >0,** trigger the relay **4x** for ¼ second at ¼ second intervals

Relay active (when not at level 0)

4. LED test 2x (visual check; lights each LED (2-7) in sequence)



5. EPROM test 2x. CAUTION: DO NOT switch off power in this step!



Outputs: Inactive
Inputs: Inactive

6. IO test (no display): **only if not normal operation level**

**If Operation level > 0:** Output first logical 0 (off) then 1 (on) LED 2-7

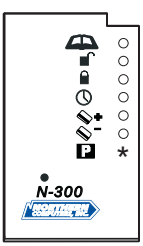
- on IO1 pin, test return values ◗
- on IO2 pin, test return values ◗
- on IO3 pin, test return values ◗
- on IO4 pin, test return values ◗

Alarm when error ❍

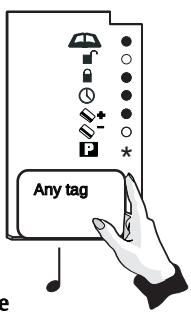
❍

Outputs: IO1 to IO4 active in sequence
Inputs: IO1 to IO4 active in sequence (when not at Operation level “0")

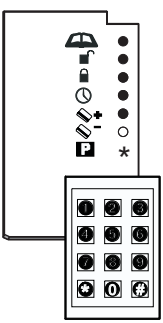
**7. Read test start**




**8. Tag Read Test (use any tag)**

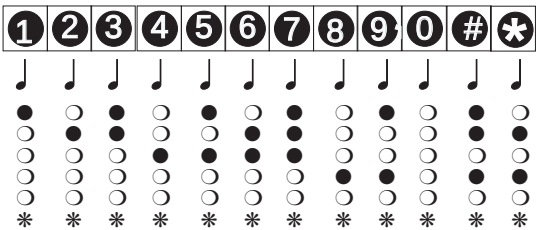



**9. Remote Programmer Read test**

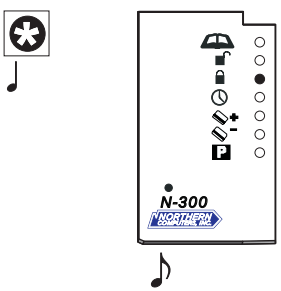


**Outputs: Inactive**
**Inputs: Inactive**

10. Keyboard input test




11. Resume normal operation




Outputs: Inactive
Inputs: Inactive

Remarks:

- The IO test is skipped if the N-300 was installed at level 0, as IO conflicts may damage internal or external circuits. Caution: never connect external "hard" potentials without pull-up or pull-down resistors.
- The relay test occurs only if a User Programmer is applied after installation, to prevent unauthorized access.

Possible errors:

- When presenting the Programmer an error tone sounds; the Programmer is unknown to the N-300 or the "protect" option was set (see Chapter 12).
- During a test an error tone sounds and normal operation resumes: the test failed. This can be in the EPROM test or the IO test; the other tests provide audio/visual feedback. Check whether IO1 and IO2 are open (not connected).

## 24 Erase memory (99*)

The Erase function voids entire groups of tags and Programmers from the N-300 memory.

To determine which group(s) must be erased, a so-called Erase level must be entered. All tags and Programmers at or below this level will be erased.

Remarks:

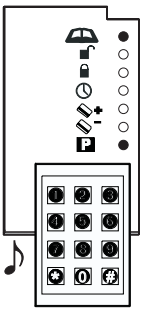
- It is not permitted to enter higher Erase levels than Programmer is authorized for (see diagram).
- All tags and Programmers below the entered Erase level value will be removed from memory.

Possible errors:

- When presenting the Programmer, an error tone sounds: the Programmer is not present in the N-300 memory, or the “Protect” option was set. (see Chapter 12).
- After the Erase level is entered, an error tone sounds, and normal operations resumes; the presented Programmer is not allowed to erase at the entered level. See above diagram; check the Programmer's level.

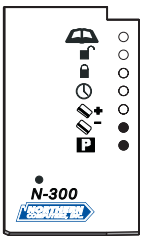
## Erase Memory

1. Program mode



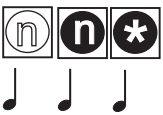
2. Enter Erase mode


3. Erase mode

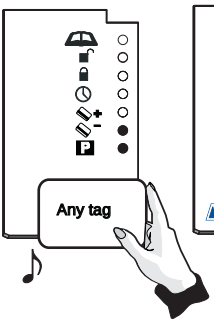



## To proceed with Erase

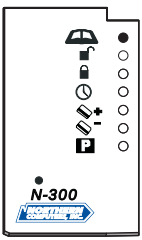
4. Type the Erase level




5. erasing (short beep for each erasure)



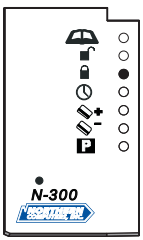

6. Resume Normal operation



## To cancel erase

4.

5. Resume normal operation




| $n_1$ $n_2$ | Programmer level |
|---|---|
| 11 | Installer Programmer (1) |
| 10 | User Programmer, Program Master (0) |
| 9 | Void Master |
| 8 | Add Master |
| 7 | Night Lock Master |
| 3-6 | Undefined |
| 2 | Status III tags |
| 1 | Status II, special user tags |
| 0 | Status I, user tags |

## Limited Warranty

Northern Computers, Inc. warrants that the products of its manufacture shall be free from defects in materials or workmanship for two years from the date of shipment. All warranty work shall be handled through Customer which shall notify Northern and apply for a Return Merchandise Authorization (RMA) number prior to returning any product for service, repair, credit or exchange. Upon return of the defective product to Northern Computers, Northern Computers will, at its sole discretion, either repair or replace, at no cost to the customer, such goods as may be of defective material or workmanship. Northern's warranty shall not extend to any Product which, upon examination, is determined to be defective as a result of misuse, improper storage, incorrect installation, operation or maintenance, alteration, modification, accident or unusual deterioration of the Product due to physical environments in excess of the limits set forth in Product manuals.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE PROVISION. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING IMPLIED WARRANTIES OF MERCHANTIBILTY OR FITNESS FOR ANY PARTICULAR PURPOSE. NO REPRESENTATION OR WARRANTY OF THE DISTRIBUTOR SHALL EXTEND THE LIABILITY OR RESPONSIBILITY OF THE MANUFACTURER BEYOND THE TERMS OF THE PROVISION. IN NO EVENT SHALL NORTHERN BE LIABLE FOR ANY REPROCUREMENT COSTS, LOSS OF PROFITS, LOSS OF USE, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES TO ANY PERSON RESULTING FROM THE USE OF NORTHERN'S PRODUCT.

RETURNING MERCHANDISE

No merchandise will be accepted for return to our factory without prior authorization. Unauthorized returns will be refused and placed in the hands of the carrier at the cost of the shipper. Upon request by Customer for a Return Merchandise Authorization (RMA), whether for credit or repair of the Product, Northern agrees that it will either issue such RMA or provide Customer with a written explanation for its refusal to issue the RMA within (30) days of the request by Customer. No returns will be accepted more than 90 days after delivery except for warranty claims. Orders that are accepted for return within 45 days after shipment are subject to a 15% restocking charge. Orders that are accepted for return within 45 to 90 days after shipment are subject to 40% restocking charge.

No returns will be accepted for special order or custom products except for warranty claims.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