NL LOCK DIA Software Instructions

Rev. 2407

DIA Board Technical Reference Manual

The DIA DOES IT ALL Board features NL Lock's unique software with enhanced capabilities for multiple users, alarm interface, audit trail and Dallas Key (with appropriate keypad). Software and circuit boards are created, designed and produced by Paolo Moretti, our partner in Italy.

Works With:

Universal RotoBolt
UR20•50

UL Type 1

Large RotoBolt
EM20•50

UL Type 1
VdS EN1300 Class B

Straight Bolt
EM35•50

UL Type 1
VdS EN1300 Class B

MotorDrive
EM30•50

VdS EN1300 Class B

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Description

Works with

UR20•50 Universal RotoBolt, **EM20•50** Large RotoBolt, **EM35•50** Straight Bolt and **EM30•50** MotorDrive

Connectors

Standard 4-wire connector to keypad: data, LED/buzzer and battery. Additional 4-wire connector to battery pack and/or I/O interface on RotoBolt, StraightBolt, MotorDrive only

Features

3 second opening window following entry of a valid code
Six digit code length, two code levels:

- **One manager:** can open, change manager code, manage users, program time delay, audit users and lock
- **Up to nine users:** can open and change their own codes

Important: new codes are rejected when less than 2 digits are different from existing codes..
Example: existing code is 1-2-3-4-5-6, 1-3-3-4-5-6 cannot be set as it is one digit off from existing code. 1-2-2-3-5-6 (2 digits off from existing code) would be acceptable.

Dallas i-Button

With an appropriate keypad, a Dallas key may be associated to any user during user installation (function #1) by entering a Dallas key after the code has been entered. User will then be identified by code plus Dallas key.

Time delay

- Delay range: 0 to 99 minutes, open window range: 1 to 19 minutes
- When time delay is active, user #9 **always** overrides time delay in “dual control” mode
- During time delay countdown, LED flashes every two seconds.
- Open window is indicated by alternating LED flashes and beep sounds every one second.

Battery low warning

- Battery low (< 4.8V) during motor activation = multiple beeps
- If battery voltage drops lower than 4V during motor activation, higher frequency multiple beeps - board resets
- If battery voltage is lower than 4V without activating motor, high frequency multiple beeps until battery is replaced - board continuously resets

Important: all data is securely stored into the lock board CPU memory and will never be lost - even in case of continuous board reset or lack of power

Time penalty

Upon entry of four consecutive invalid codes, the keypad is blocked and will not accept entries for 5 minutes. During this period, the LED flashes every 10 seconds and any key press causes a long beep. Upon expiration, the entry of two more invalid codes restarts the 5 minute blocking period.

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Audit features (per EN1300 requirements)

Current user status can be audited through the keypad with function #7

A "basic audit" file (last 100 openings, no time & date) is recorded on the standard lock board when more than one user is installed. Audit file may be downloaded to a Dallas key via the keypad with Function #7

Battery Power

Locks with DIA software are designed to work with battery supplied power from 6 to 9 Volts. We offer an optional power supply regulation board for use with 12-24VDC.

Attention: If voltage higher than 12 VDC is applied, internal circuitry protection will drain extra current to prevent possible board damage/failure.

I/O signal feature (not available on Universal models)

If optional alarm interface board is connected, duress code (+1 on last code digit) will trigger alarm box output (NC signal). When energized, alarm box input signal will disable all lock openings.

Set Up Process

Overview

The following steps are necessary to set up a new or factory mode lock:

- Ensure lock is in factory mode: pressing #1 key activates lock opening
- Restore the lock to the locked position with the door OPEN
- Select desired lock configuration from one of the following tables, after which Factory Mode will be exited, lock will be fully operational according to the selected configuration and set to default manager code 1-2-3-4-5-6

Lock configuration

Locks are shipped in Factory Mode. Lock configuration must be – and may only be – performed during set-up while the lock is in factory mode. (An optional Reset Box is required to return the lock to factory mode after set-up.)

While lock is in factory mode, press and hold #2 until double beep and keypad LED stays ON, enter 5-5-5-5-5-5 (default code), double beep followed by the desired configuration number from one of the following configuration tables.

Configuration Tables

Config. Number	# of users	Dual control
0	1 manager + 1 user	No
1	1 manager + 9 users	No
2	1 manager + 1 user	Yes
3	1 manager + 9 users	Yes

-OR-

See table next page

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One key to close (Motor Drive Only)

While lock is in factory mode, press and hold #2 until double beep and keypad LED stays ON, enter 5-5-5-5-5-5 (default code), double beep followed by the desired configuration number from the table below:

Config. Number	# of users	Dual control	One-key-to-close
4	1 manager + 1 user	No	Yes
5	1 manager + 9 users	No	Yes
6	1 manager + 1 user	Yes	Yes
7	1 manager + 9 users	Yes	Yes

If one key to close mode is active, lock bolt will stay in open position until a key is entered (double beep, motor activates to close the lock)

Keypad will signal bolt open position with a single LED/beep every 10 seconds

Important: Following configuration from either table, the lock exits Factory Mode and the Manager Code is set to default 1-2-3-4-5-6

Functions

Note: Manager code entry is required for Functions 1, 2, 3, 7 & 9

To change codes (Function #0)

Press and hold #0 until double beep and keypad LED stays on, then release

Enter current code to be changed (manager or user). Double beep = valid entry, long beep = invalid entry.

Enter new code (double beep) and repeat new code again to confirm (double beep and LED goes out)

In case of entry errors (long beep), the old code remains valid

- If a Dallas key is associated to the user code, the same or a new key must to be entered when entering the new code and when confirming it
- A Dallas key may be associated to the Manager code during this procedure. Once a key is associated to the Manager, Manager will always require a key together with the code.

To activate User Codes (Function #1)

Press and hold #1 until double beep and keypad LED stays on, then release

Enter manager code (double beep)

Enter user ID #1 - #9 (not necessary in single user mode). Double beep and LED powers off if user is already active, exits function. Long beep if user is not available, aborting function. Double beep and LED on if user is available (not active or deleted).

Enter new user code. Double beep = valid, long beep = code error, aborting function. Enter code again to confirm. Double beep = accepted, long beep = confirmation error.

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- Function #1 continued

Notes:

- Manager only function
- A Dallas key may be associated to the user code during this procedure
- If manager is the only available code or dual control is active and only one user is available in the lock, this function is not available
- Manager can activate user #9 only if no time delay or during open window.
- If dual control is enabled, enter a valid user code ***before*** manager code to access Function #1

To disable/enable User Codes (Function #2)

Press and hold #2 until double beep and keypad LED stays on, then release

Single short flash of keypad LED = function unavailable

Enter Manager code

Double beep = all active user codes are disabled if currently enabled or re-enabled if currently disabled

Notes:

- Manager only
- This function is available only if more than one user is available and dual control is not active in the current configuration

To delete User Codes (Function #3)

Press and hold #3 until double beep and keypad LED stays on, then release

Single short flash of keypad LED = function unavailable

Enter Manager code (double beep)

Enter user ID #1 - #9 (not necessary if single user mode). Long beep if user is not activated, aborting function. If user is active, double beep = user code now deleted

Notes:

- Manager only
- If manager is the only available code or dual control is active and only one user is available in the lock, this function is not available
- If dual control mode is enabled, enter a valid user code ***before*** Manager Code to access Function #3

Lock/Keypad functional test (Function #5)

Press and hold #5 until double beep and keypad LED stays on, then release

Enter all keys in numerical sequence: 1-2-3-4-5-6-7-8-9-0

A double beep at each key press indicates that the lock and keypad are communicating and performing properly

A long signal indicates a fault that can likely be corrected by replacing the keypad

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Lock audit (Function #7)

Press and hold #7 until double beep and keypad LED stays on, then release

Single short flash of keypad LED = function unavailable

Enter Manager code (double beep)

Hold a Dallas audit i-button on the keypad opening to download the basic audit file from the lock board. Double beep = download is successfully completed.

If audit file download is not desired, pressing a user ID key will return user status: double beep = active, single beep = deleted, long beep = not activated

Enter '0' to exit function.

Notes:

- Manager only
- This function is available only if more than one user is installed

Set time delay parameters (Function #9)

Press and hold #9 until double beep and keypad LED stays on, then release

Single short flash of keypad LED = function unavailable

Enter Manager code (double beep)

Enter time delay value (from **00** to **99** minutes, 2 digits, ***00 disables time delay***), then open window (from **01** to **19** minutes, 2 digits). Double beep.
For Example: to program a 26 minute delay and 12 minute open window, enter: [2612]

Enter values again to confirm. Double beep = correct, long beep = confirmation error.

Notes:

- Manager only
- If manager is the only available code, this function is not available
- If manager changes values during time delay, the time delay value may only be increased, decreased values will be ignored

Factory Reset Procedure

Factory reset

- Via keypad (Universal models only): change Manager code to factory code: (5-5-5-5-5-5)
- Via optional Reset Box (RotoBolt, Straight Bolt and MotorDrive): disconnect keypad battery and/or other power supply from the lock, press and hold "0" (zero key) for 15 seconds to dissipate residual power, disconnect battery from Reset Box, connect Reset Box to BAT receptacle on the lock, reconnect battery to Reset Box, double beep = factory reset successful. Disconnect Reset Box and reconnect keypad battery and/or other power supply.

When Reset is complete, test that lock is in Factory Mode: pressing #1 key activates lock opening. Default code is 5-5-5-5-5-5. Audit file is not cleared. Proceed to Set Up Process>Lock Configuration (Pages 3-4)

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Operation

To enter manager or user code

Enter factory or existing code. Double beep = valid code, long beep = invalid code.

- If a Dallas key is associated to the user (or to the Manager) code, hold the key onto the keypad opening after the code has been entered. Double beep = valid, long beep = error. If no key is entered within 7 seconds after the code, the lock will signal a long beep

To enter Function (Manager or User)

Hold down desired function key until double beep. Enter manager code (required for Functions 1, 2, 3, 7 or 9) or user code (Functions 0 or 5 only). Double beep = valid code, long beep = invalid code

- If a Dallas key is associated to the user (or to the Manager) code, hold the key onto the keypad opening after the code has been entered. Double beep = valid, long beep = error. If no key is entered within 7 seconds after the code, the lock will signal a long beep.

To open (Standard mode)

Enter manager or user code (and key if necessary)

If time delay is enabled, LED flashes at two second intervals. Open window is indicated by alternating LED flashing and beeps at 1 second intervals. During open window, enter code again (double beep), motor is activated.

To open (Dual Control mode)

Enter first code (and key if necessary)

Enter second code (and key if necessary)

If time delay feature is activated, first code will start time delay. During open window, enter both codes to open (double beep), motor is activated and lock/container may be opened.

To open (Override mode – user #9)

Enter first code (and key if necessary), time delay will start counting

Enter user #9 code (and key if necessary) to open (double beep), motor is activated

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