

# Routefinder

## User Manual V 1.2

# *Routefinder*



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## User manual update log

Version No	Date	Description
1.00	29 Sept 2017	First Release
1.1	1 April 2018	<i>Routefinder Firmware 1.10 Updates:</i> Figure 12, Figure 14, Figure 15, , Figure 22, Figure 23, Figure 30, Figure 53 and Section 2.5, 1.6.1 Updated
1.2	9 Jan 2019	<i>Applicable for Routefinder firmware &gt;1.14</i> DALI bus extension capability added (Section 3.2) Screen saver made to bounce across screen (Figure 16,Figure 17) Sure ID identification option added (Section 3.3.2) Mask short address command added (Section 3.6.4) Keyboard strokes received from VNC server filtered (Figure 48) On home screen button name changed to "See status & logs" (Figure 8)

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# 1. Getting Started

## 1.1. Getting to Know the Routefinder Panel

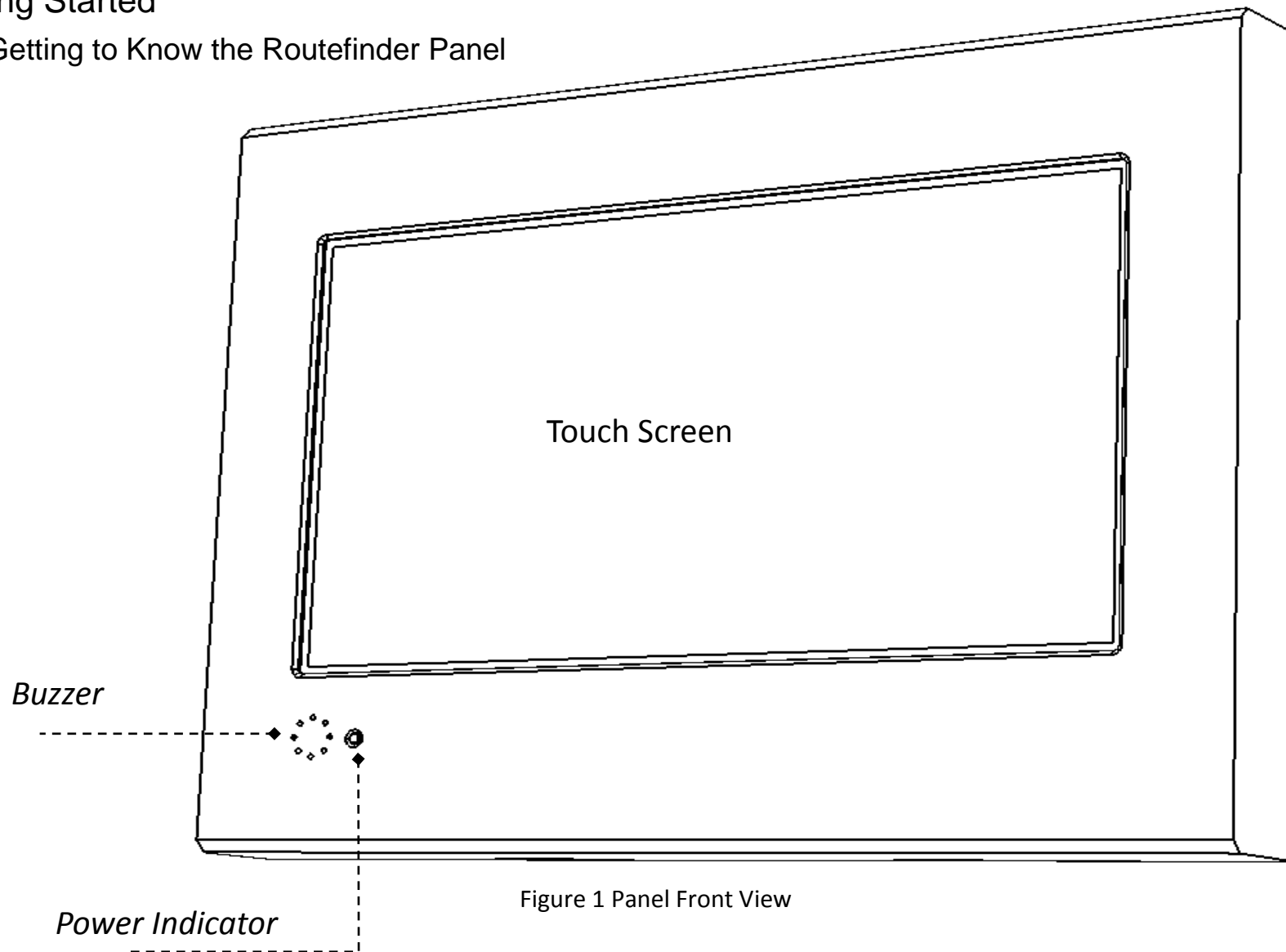
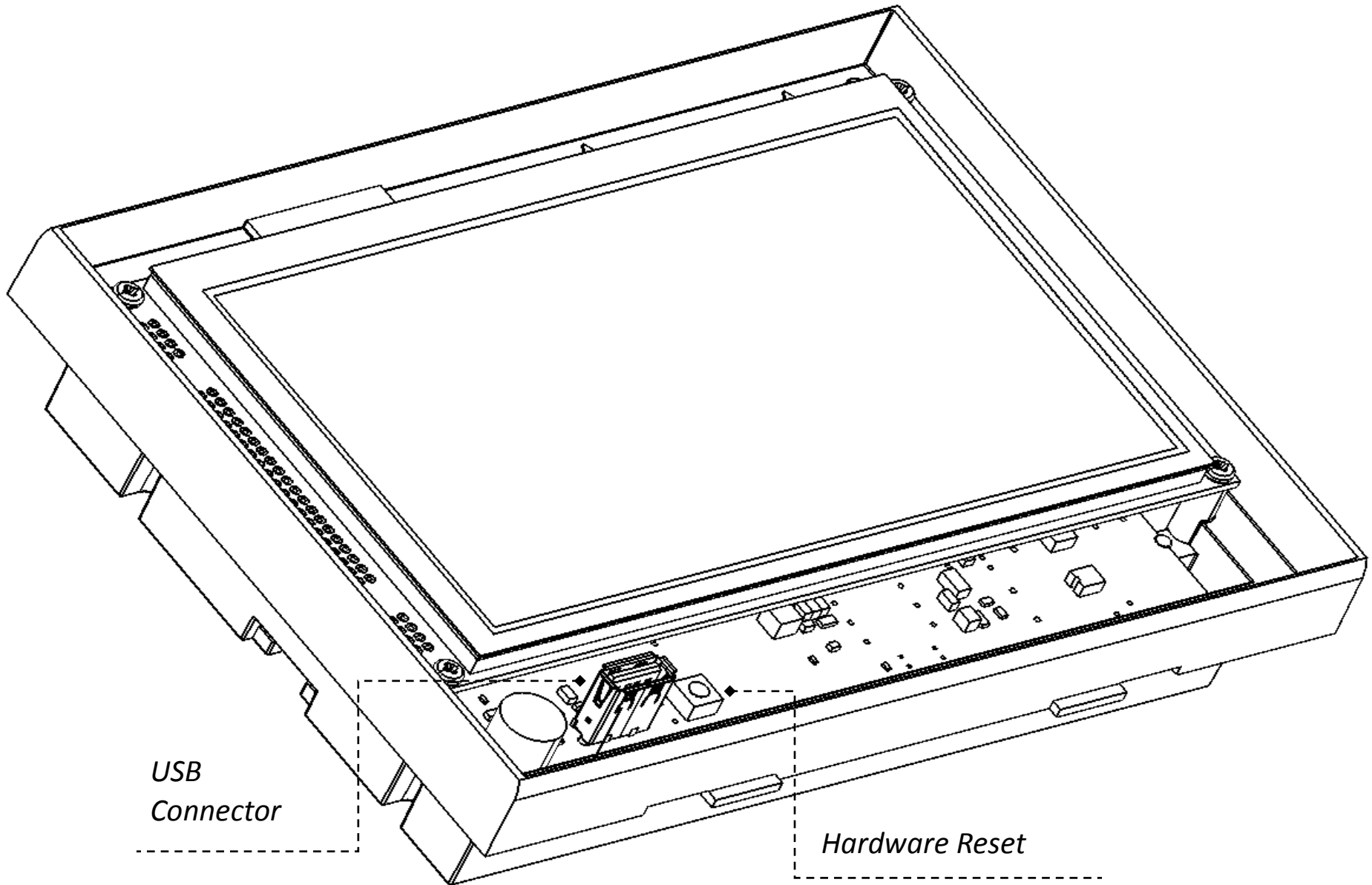


Figure 1 Panel Front View



*USB  
Connector*

*Hardware Reset*

Figure 2 Panel Front View (Cover removed)



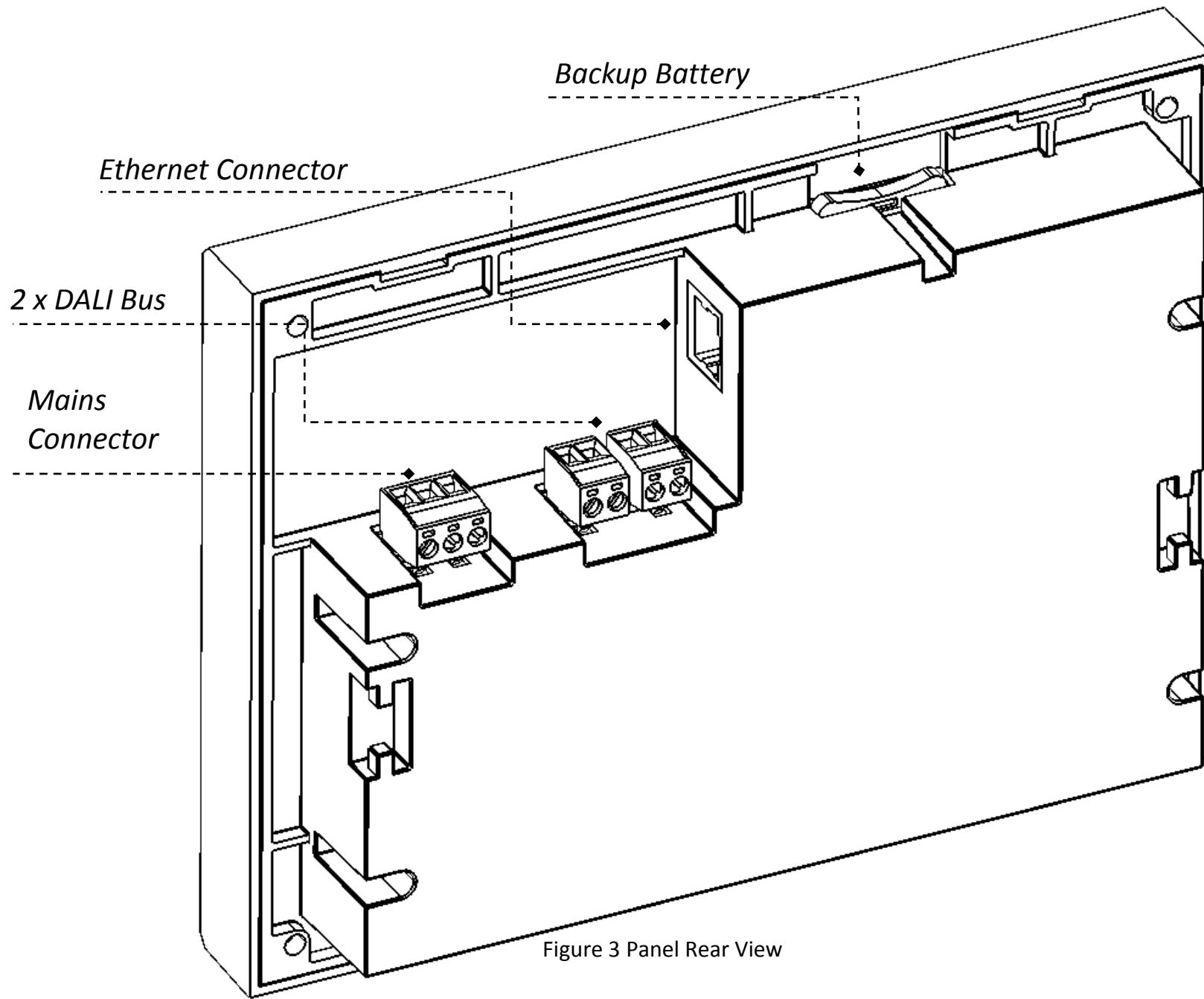


Figure 3 Panel Rear View

## 1.2. Panel Specification

Rated voltage and frequency	230V@ 50/60 Hz
Temperature Range	0°C to +40°C
Touch screen	Resistive
LCD	7" @ 800 x 480, 64K
DALI	Single master supporting 2 self-powered bus (short circuit protected)
Supported DALI accessory	Self-contained emergency luminaire (Device Type 1 as per IEC 62386-202)
Memory capacity	10 years
Power rating	5 .1 W nominal, 16.1 W peak
Weight	560 g
Dimensions (H x W x D)	150 x 195 x 45 mm

## 1.3. Cabling Requirements

DALI control and supply leads can be included in same cable, make sure to install DALI lead with minimum diameter according to the following Table 1

- Mains supply: Standard 3 core cable or 5 core with DALI lead included in same cable with lead diameter 0.5 to 2.5 mm<sup>2</sup>
- DALI bus: The maximum DALI bus length must not exceed 300 meters.

Lead length	Minimum lead diameter	Maximum lead diameter
up to 100 meters	0.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
100 – 150 meters	0.75 mm <sup>2</sup>	2.5 mm <sup>2</sup>
above 150 meters	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>

Table 1 DALI Bus Specification

- Ethernet : CAT5 Ethernet cable with RJ45 connectors

## 1.4. Applicable Standards

BS EN 62386-103:2014	Digital addressable lighting interface – Control devices
BS EN 62034:2012	Automatic test systems for battery powered emergency escape lighting
BS EN 61347-1:2015	Lamp control gear. General and safety requirements
BS EN 61347-2-11:2002	Lamp control gear. Particular requirements for miscellaneous electronic circuits used with luminaires
BS EN 55015:2013+A1:2015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
BS EN 61000-3-2:2014	Electromagnetic compatibility limits. Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)
BS EN 61547:2009	Equipment for general lighting purposes. EMC immunity requirements

## 1.5. Panel Installation

### 1.5.1. Open Front Cover

To remove front cover of panel, follow the sequence depicted in Figure 4

- Use wide flat screw driver to unlatch the two hooks from the bottom side of the panel and then lift up and unhook bottom edge of the front cover from the base of the panel as shown in Figure 4

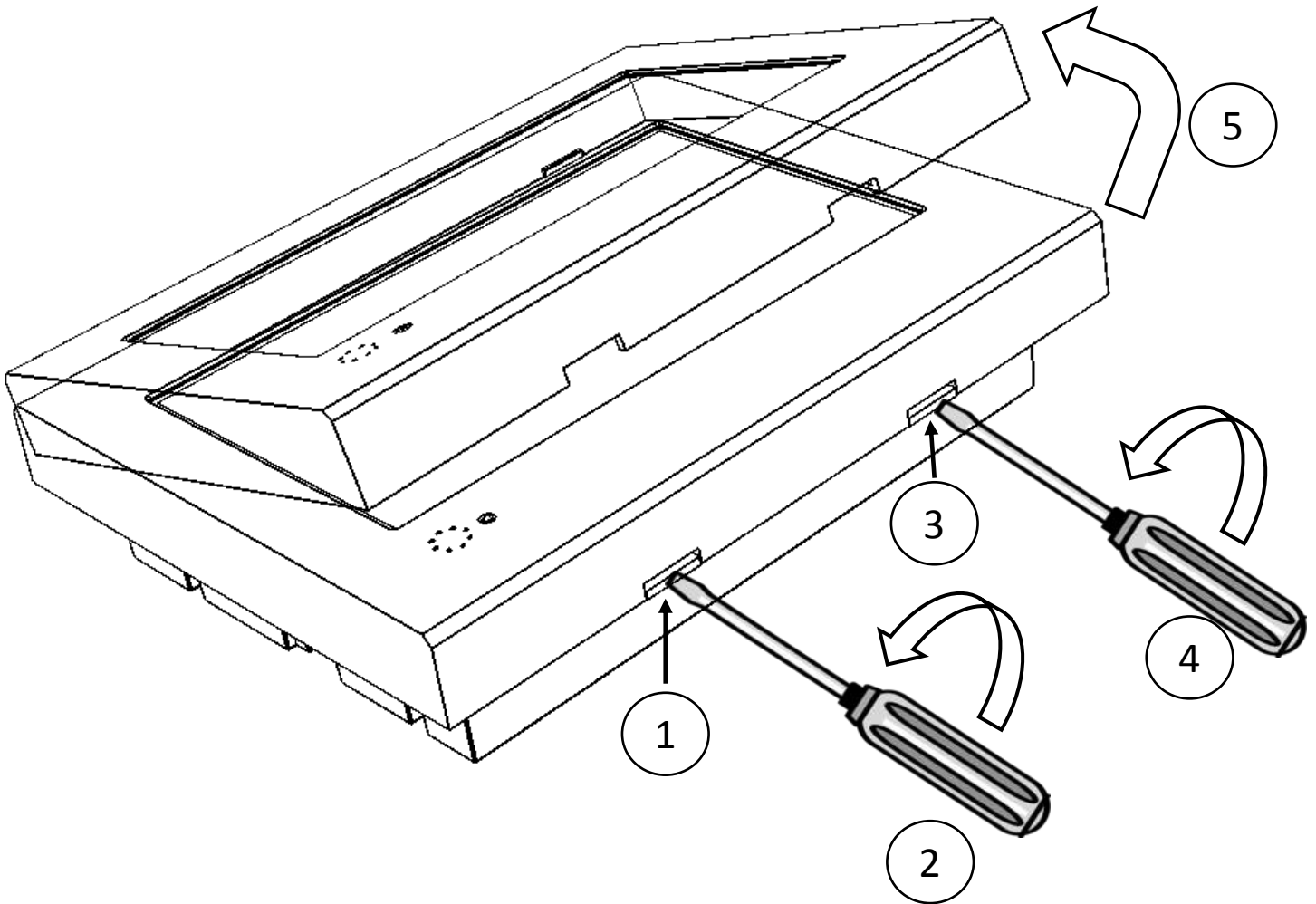


Figure 4 Remove Front Cover

### 1.5.2. Install Panel to Wall Mount Box

To install panel perform the following steps as shown in Figure 5

- Remove front cover of panel as described in section 1.5.1
- Fit the mounting box to an already prepared recess in the wall using provided wall mounting holes. Note the mains supply cable, DALI bus cables and network cable (when used) should be fed through the cut-out at the back of the mounting box.
- Connect the two 2 way terminal block plugs to DALI bus cables. Note the terminal blocks have a 'key' which prevents them being swapped over.
- Connect the 3 way terminal block plug to mains with Earth, Neutral and Live(E,N, & L) as shown on the label of the panel
- Prepare the networking cable by fixing a RJ45 connector as required
- Connect DALI bus connector, mains connector and networking cable (if required) to the panel
- Fix the panel with mounting box while avoiding any trapped wires and secure it to mounting box using the provided self-taping screws through panel mounting holes as shown in Figure 5
- Finally replace the front cover to panel base by positioning the top edge of cover first and then pushing the bottom of the cover over the bottom edge of the panel base

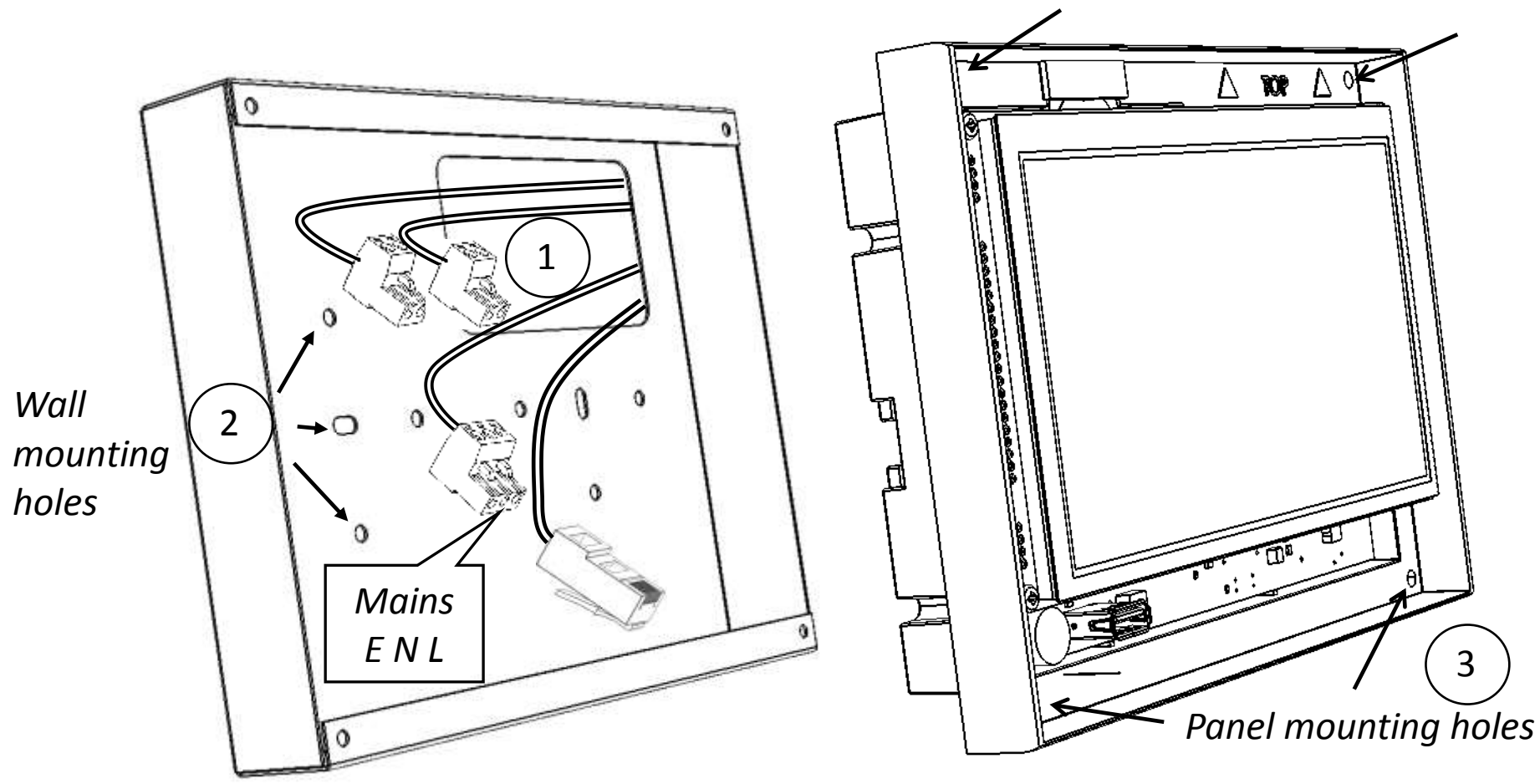


Figure 5 Panel Installation

### 1.5.3. DALI Network

Panel features two individual self-powered DALI buses supporting 64 self-contained emergency luminaire (Type 1) each. DALI network supports both star and serial networking topology, connect emergency luminaires to DALI bus as shown in Figure 6 or Figure 7 or combination of both.

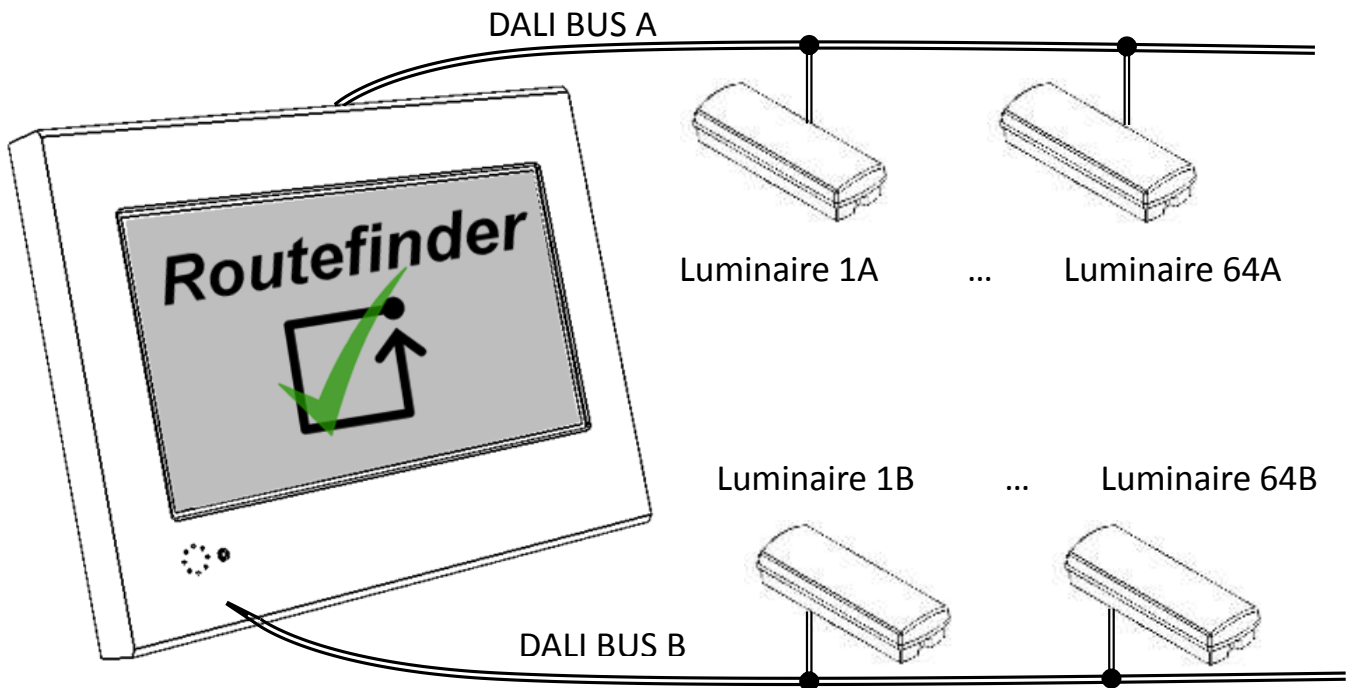


Figure 6 DALI Network (Serial)

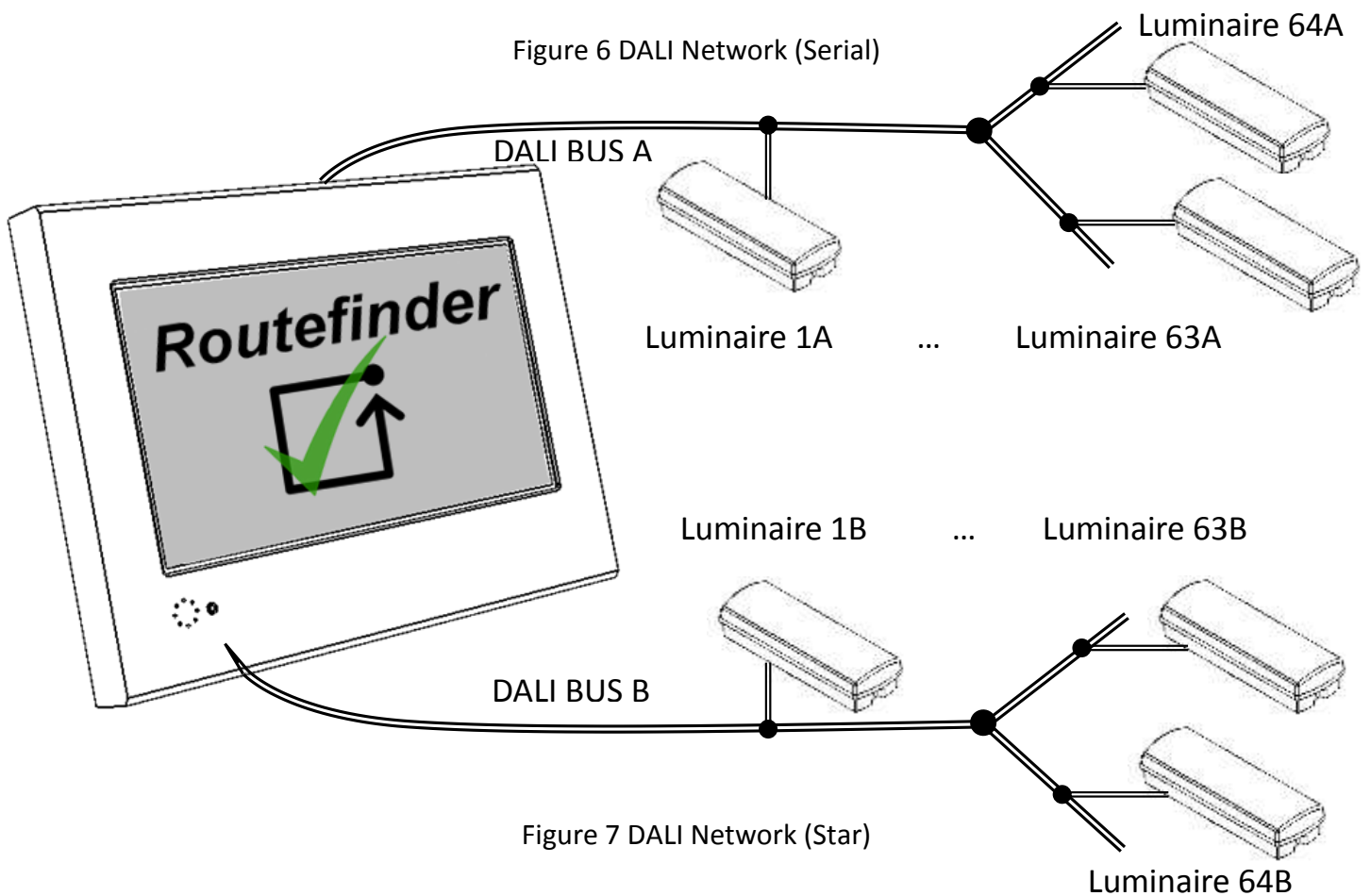
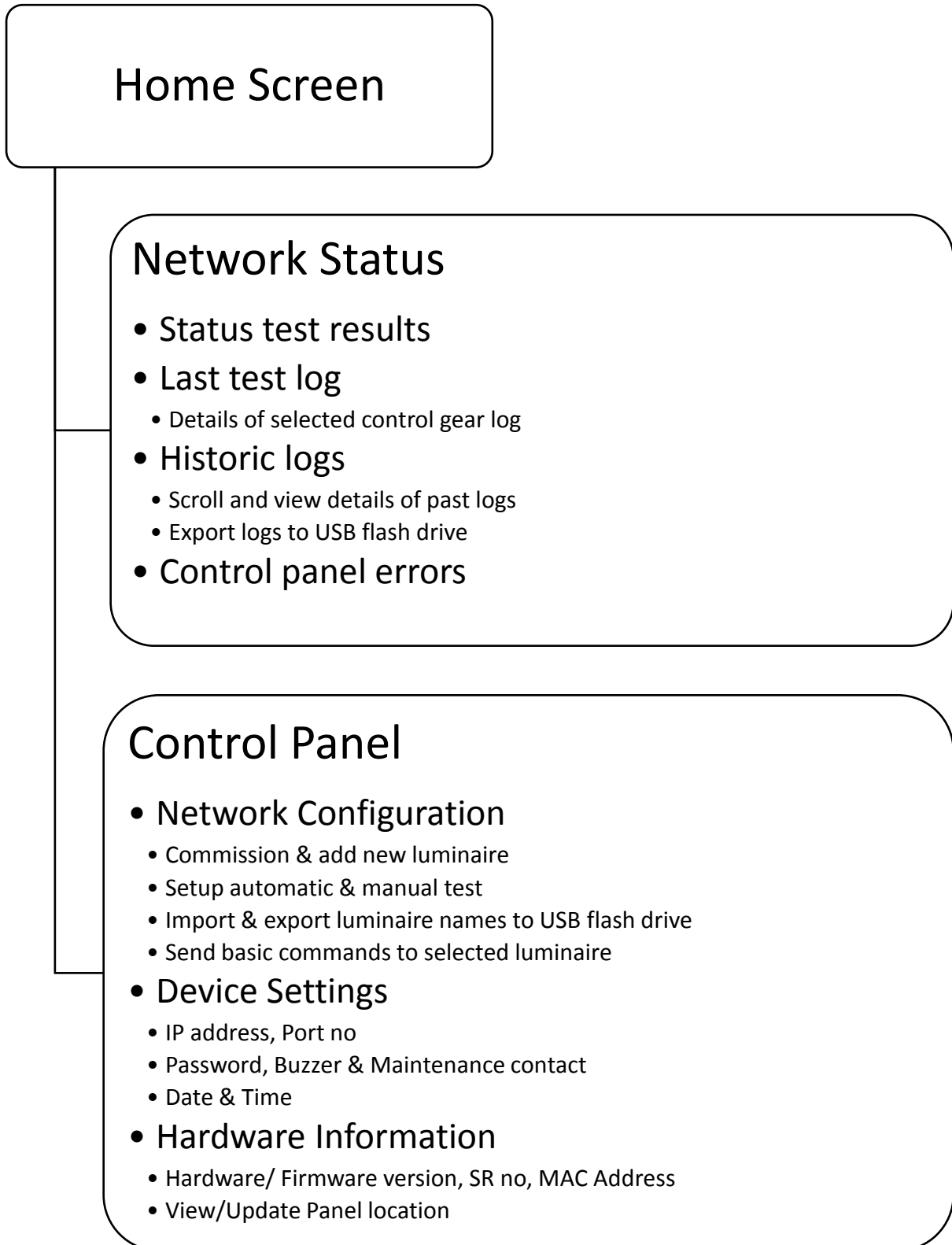


Figure 7 DALI Network (Star)

## 1.6. Panel Menu

### 1.6.1. Menu Hierarchy



## 1.6.2. Screen Details

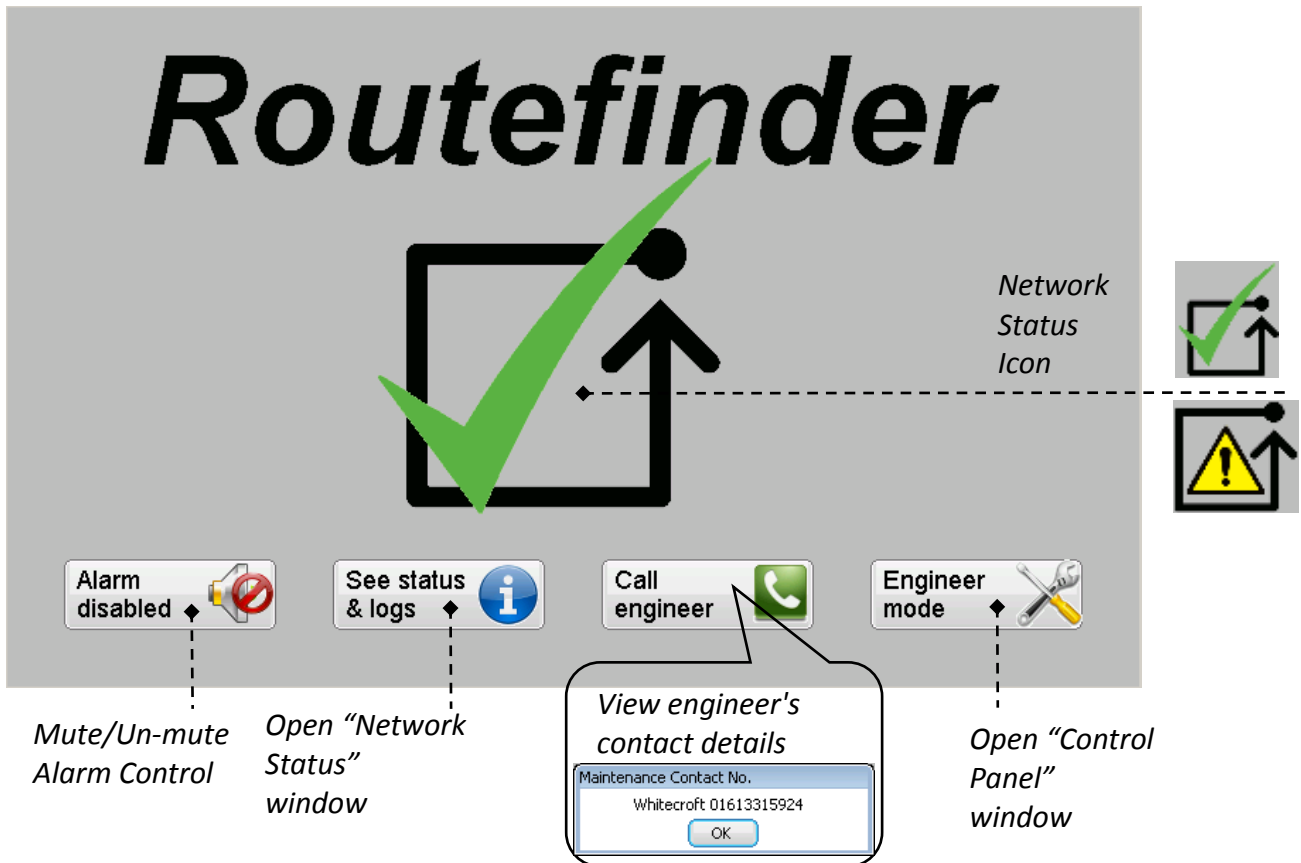


Figure 8 Home Screen

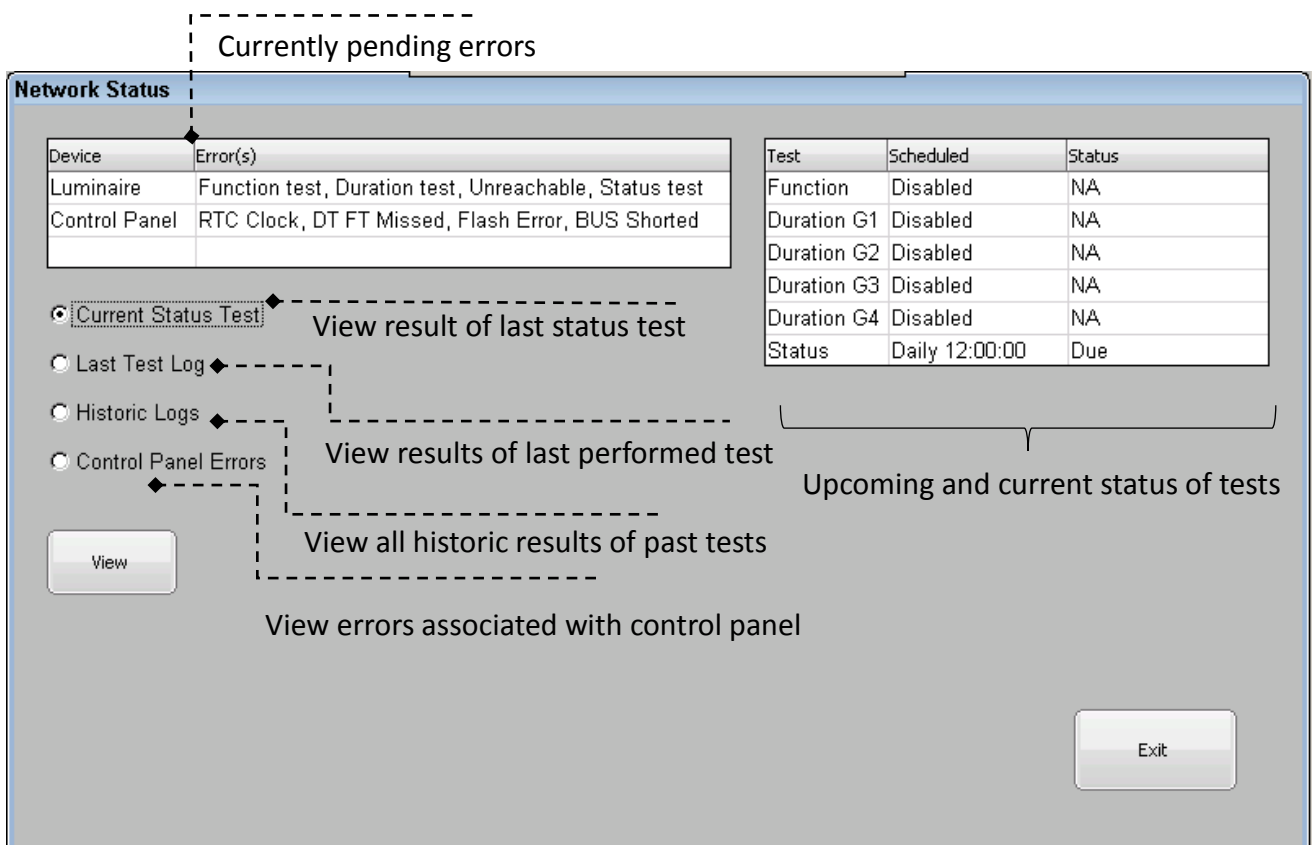


Figure 9 Network Status Window



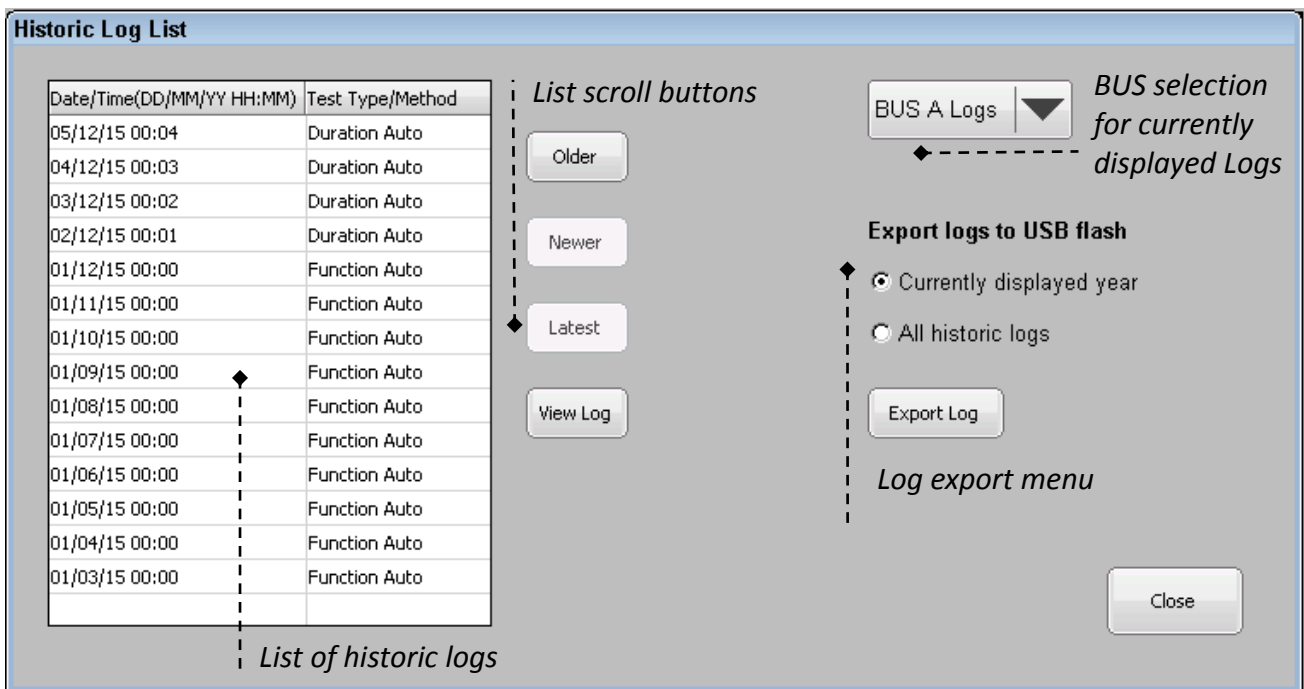


Figure 10 Historic Log List Dialog

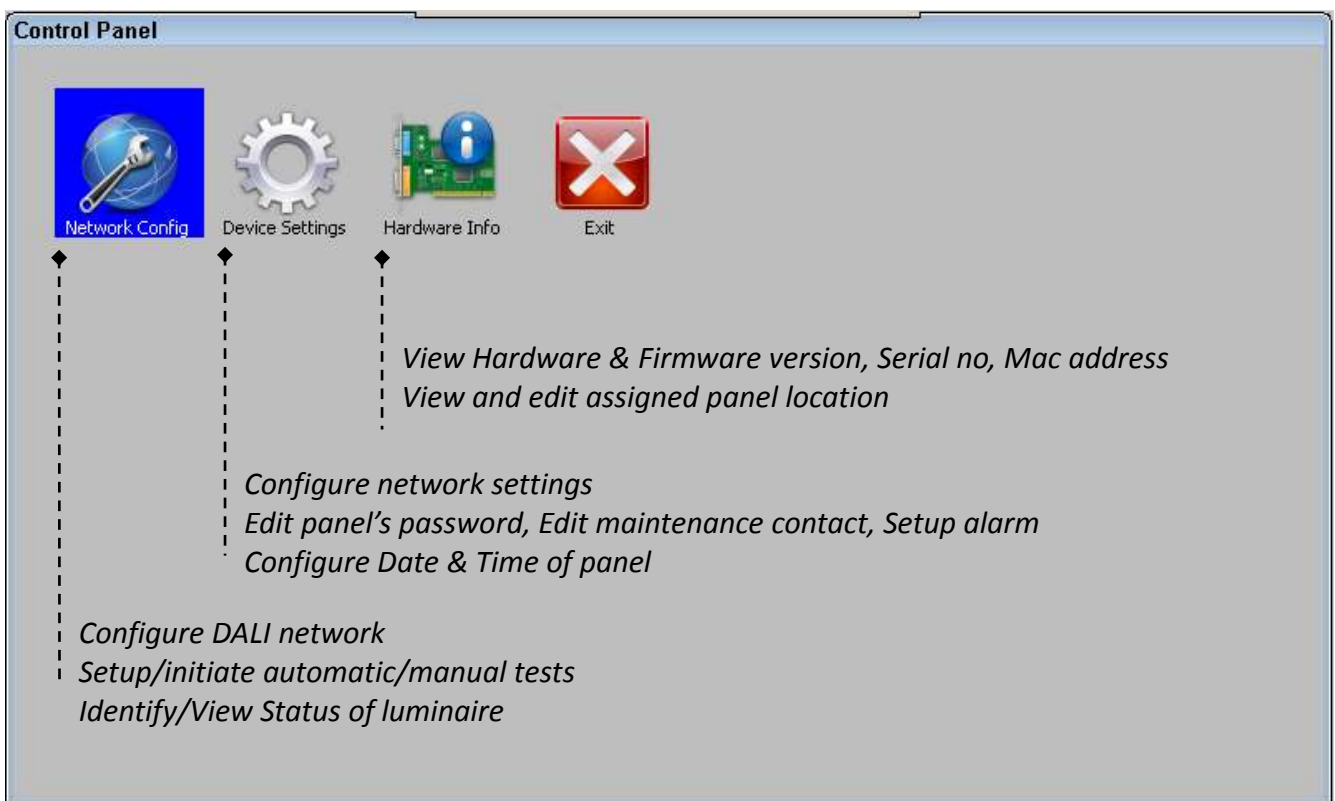


Figure 11 Control Panel Window

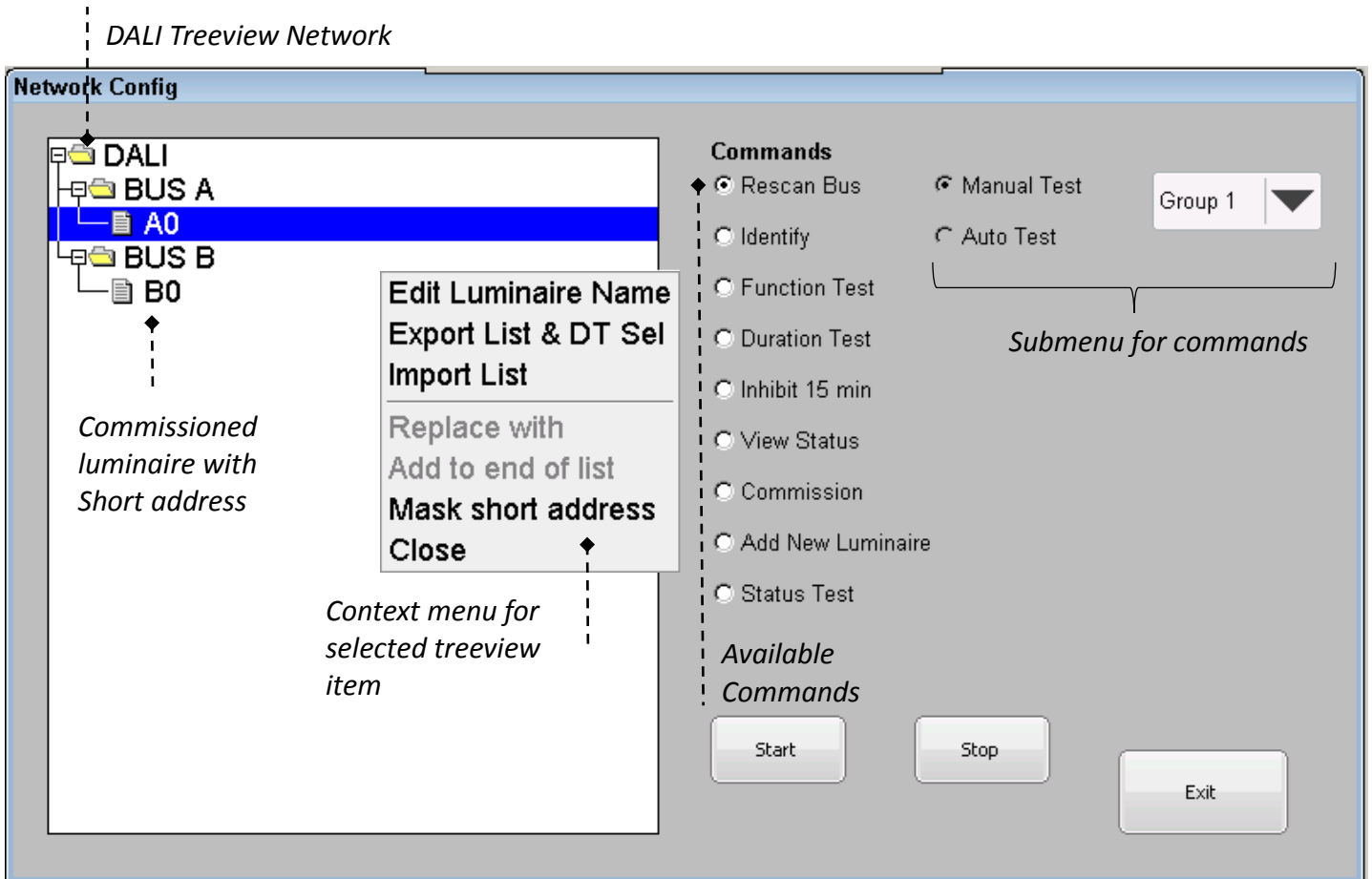


Figure 12 Network Config Window

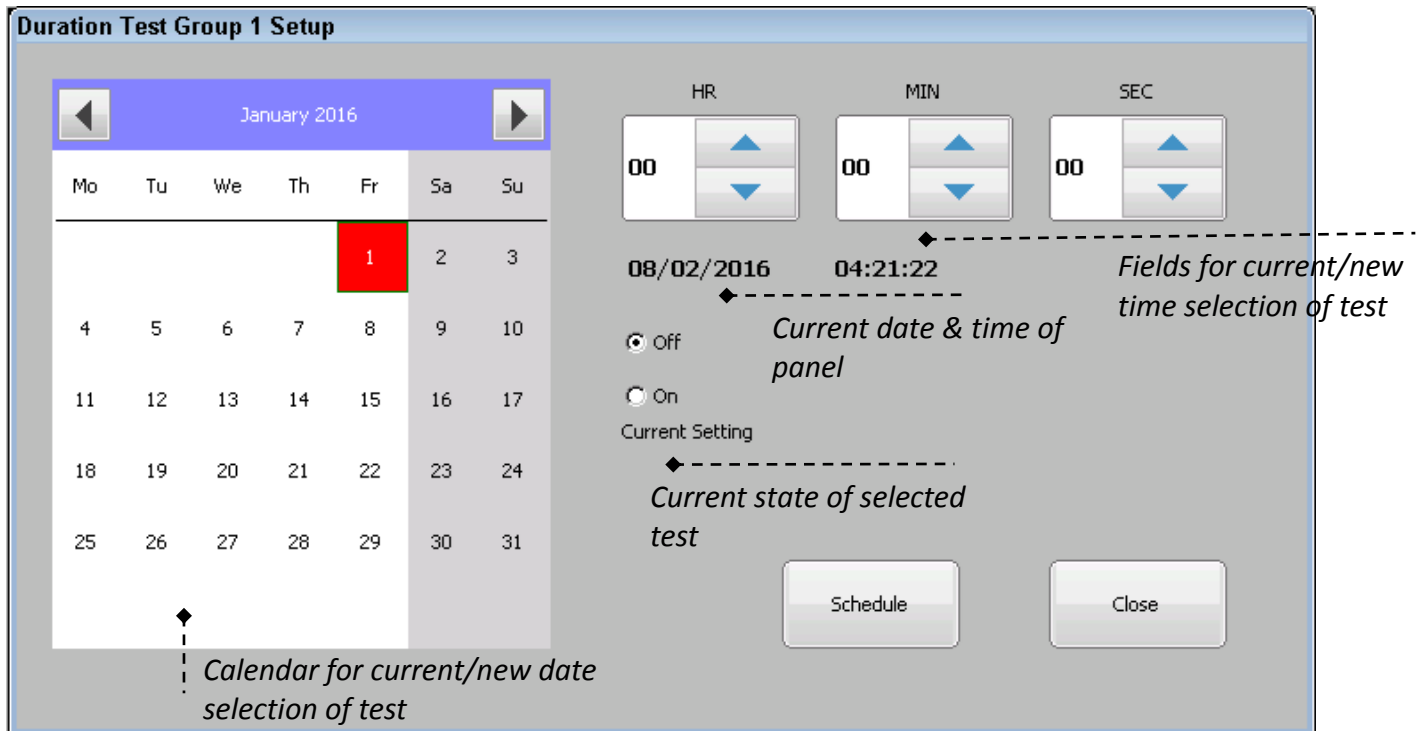


Figure 13 Test Setup Dialog

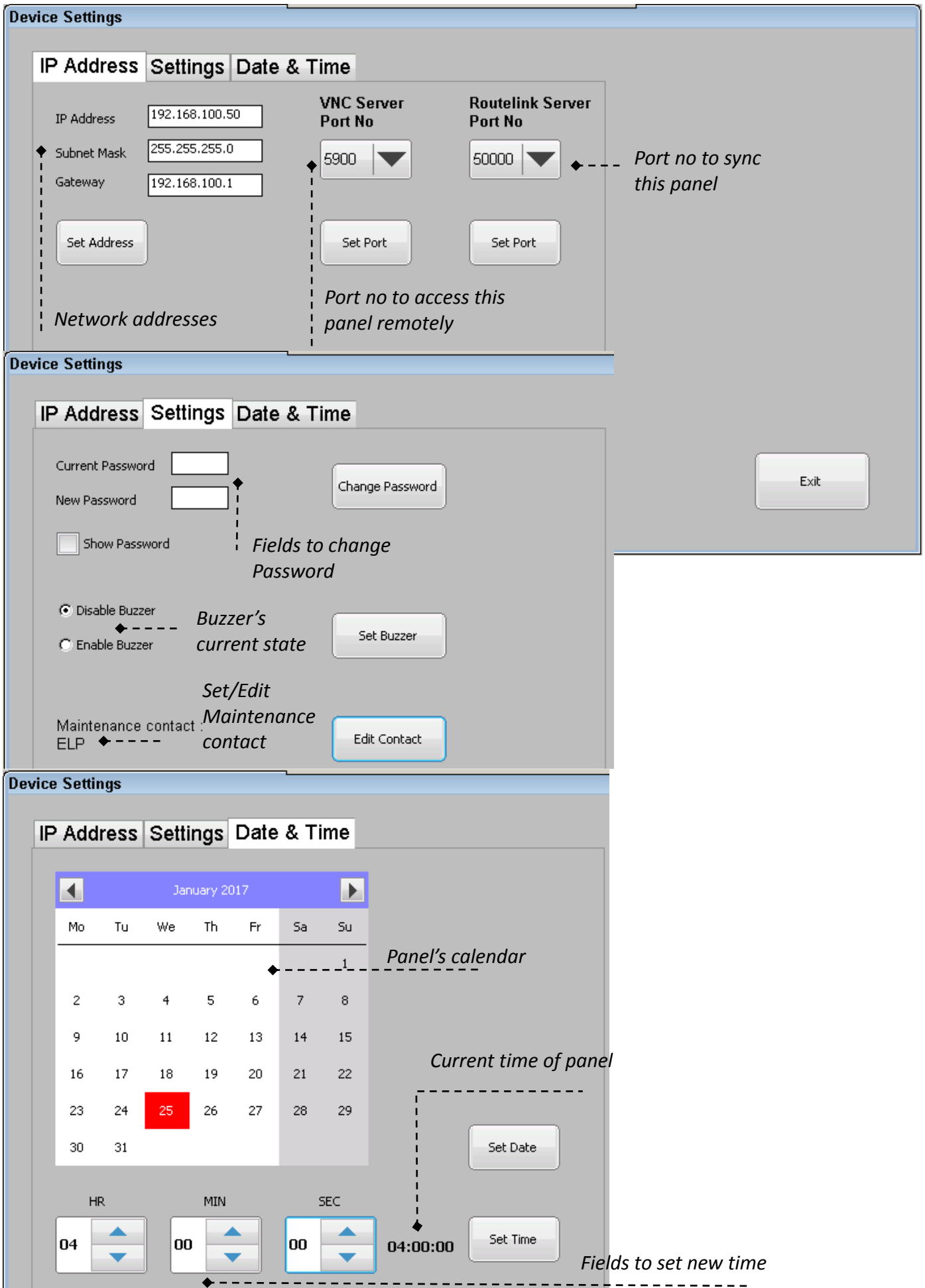


Figure 14 Device Settings Window

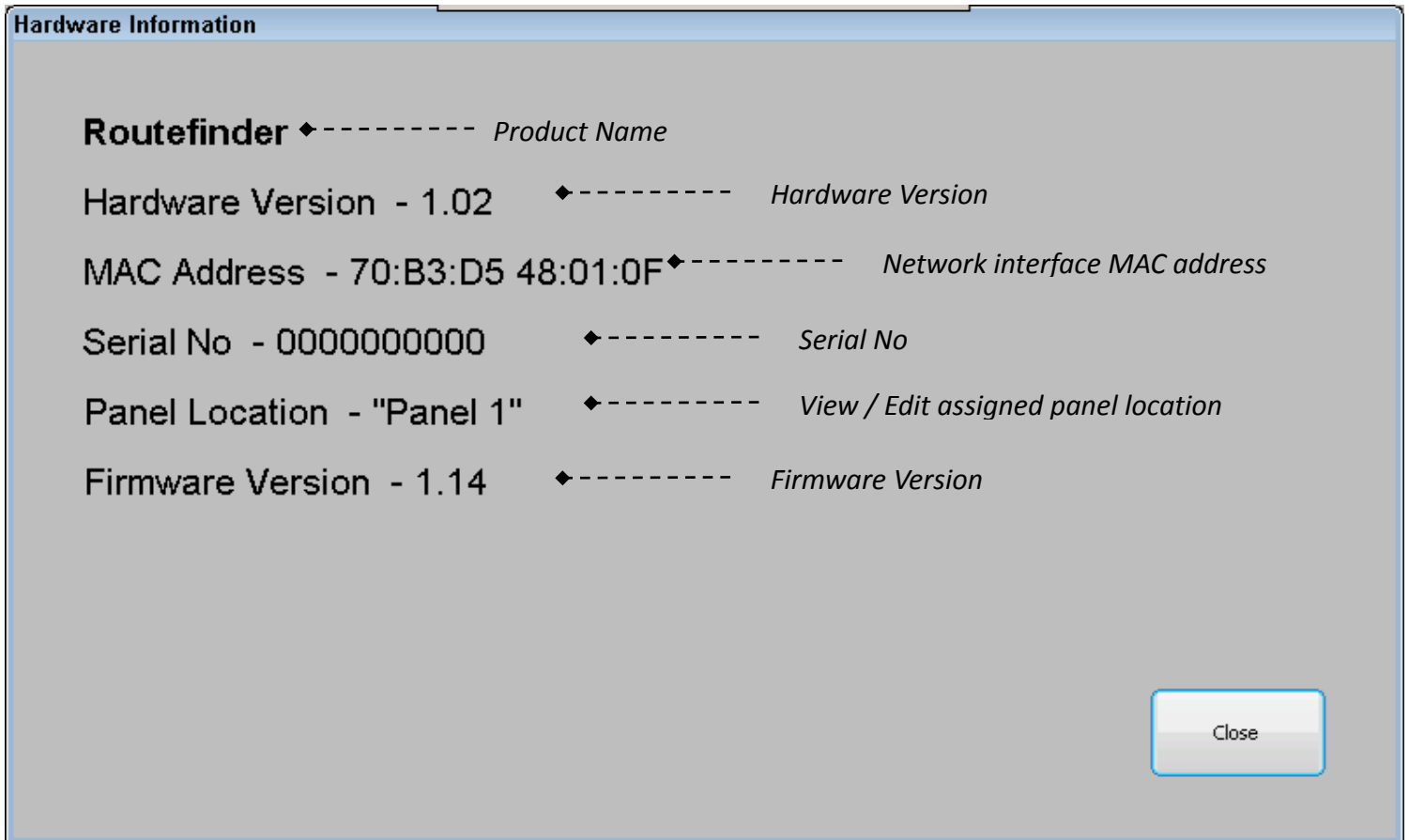


Figure 15 Hardware Information Window

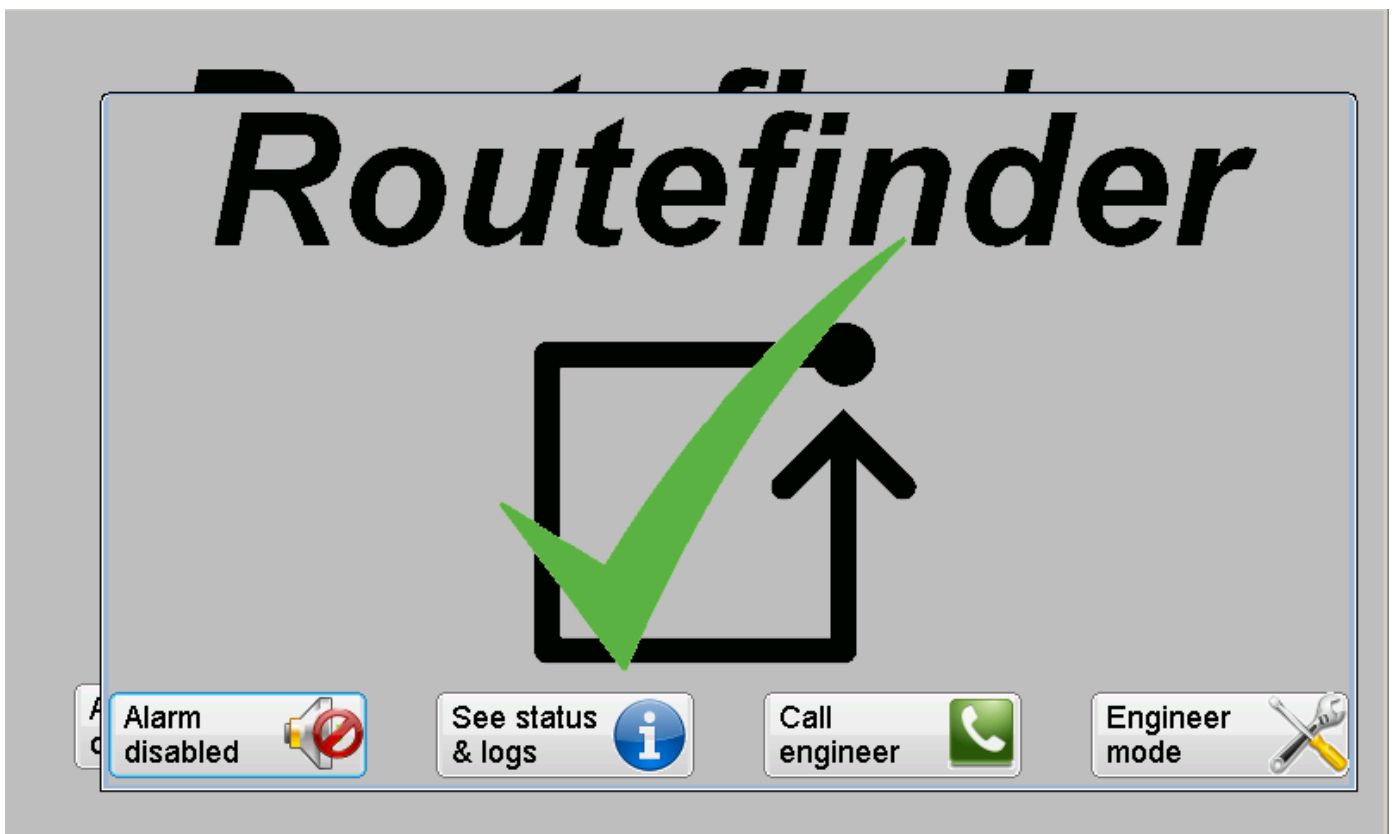


Figure 16 Screen Saver (No Fault on Network)



Figure 17 Screen Saver (Fault on Network)

\*Screensaver window is a floating window that appears on current screen after 5 min from last touchscreen event and reflects the current status of network. The screen saver can be closed by clicking on "Routefinder" icon or by clicking on "See status & logs"/ "Engineer mode" button. Password authentication is needed if the screen saver has appeared on any of protected menus ("Engineer mode") to regain access to the panel menus.

\*\*LCD display will go into sleep state 10min after last touch event if there are no faults on network. Should new fault occur on network while the LCD is in sleep state, it will power on automatically.

## 2. Panel Configuration

### 2.1. Date and Time

Panel has its internal real time clock and calendar which are battery backed up in the event of mains failure. The setup and correct operation of clock/calendar is crucial for performing automatic function and duration tests. Although displayed calendar can be scrolled through 1582 and 9999, it has been limited to current century i.e. between 2000 and 2099.

To set date and time for the panel follow the steps as shown in Figure 18

- Go to “Home Screen” > “Engineer Mode” > “Device Settings” window
- Enter \*default/current password to gain access and press “Ent”
- In the “Device Settings” window select “Date & Time” tab
- Use left and right arrow of calendar widget to scroll through months/years and select required date then press “Set Date” button
- Use up and down arrows of bottom 3 spin boxes(HR,MIN,SEC) to set required time and press “Set Time” button

\*Default password can be found on a label on back of the panel.

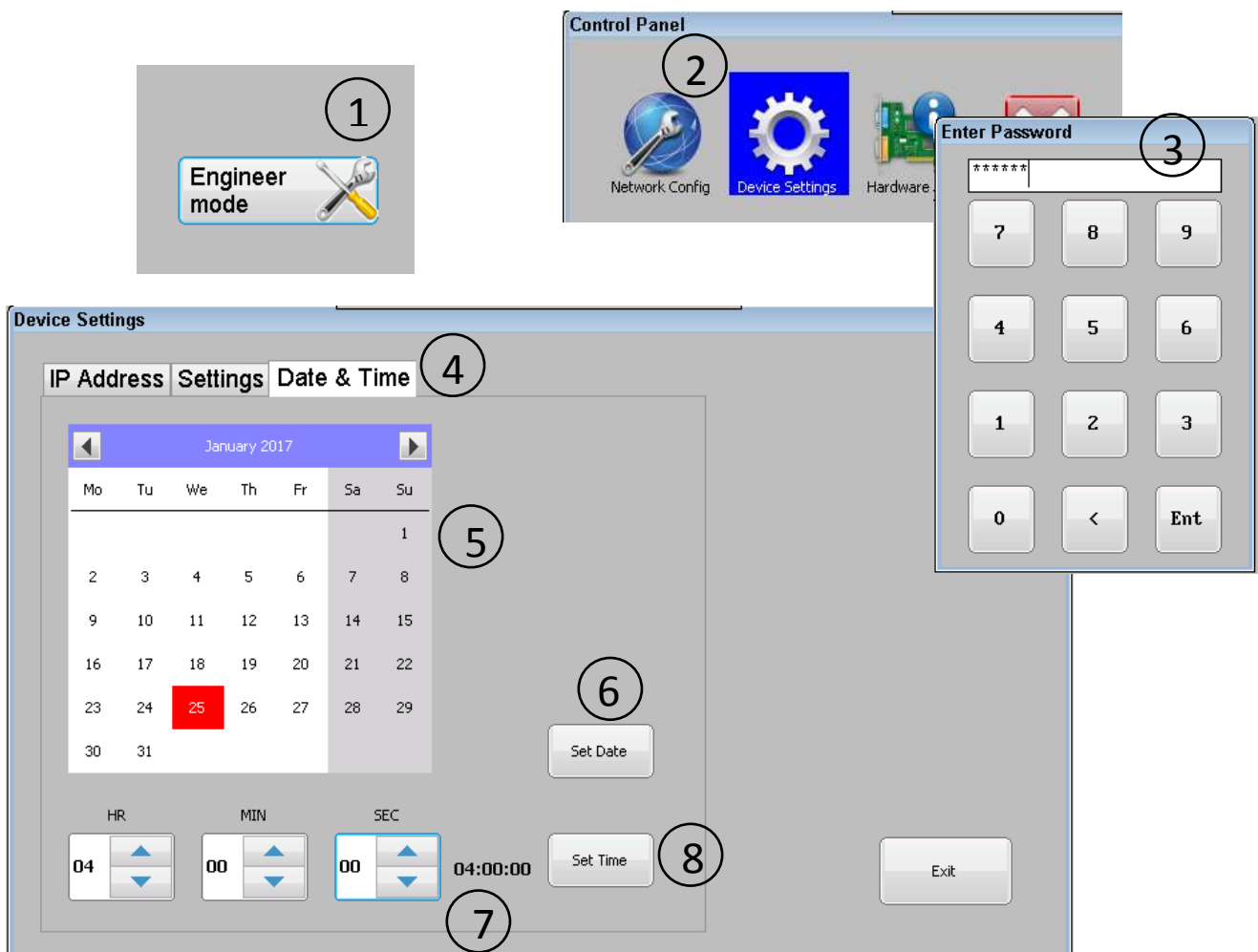


Figure 18 Date and Time Setup

## 2.2. Password Change

To change the current password of the panel follow the steps as shown in Figure 19

- Go to “Home Screen” > “Engineer Mode” > “Device Settings” window
- Enter 6 digit password to gain access and press “Ent”
- In the “Device Settings” window select “Settings” tab
- Click on edit box of “Current Password” field to bring the Numpad up and enter the known password in selected field.
- Click on edit box of “New Password” field and enter 6 digits of required password in selected field. To close the Numpad click on “Ent/Close” button on the Numpad.
- Upon entering both current and new password press “Change Password” button on “Device Setting” window to commit to the change. Change of password will be confirmed by pop up window.

\*New password entered here will serve to gain subsequent access to protected areas of panel as well for accessing panel remotely. If the known password is lost then to revert back to the default password, perform a hardware reset by pressing the “Reset” button situated under the front cover of panel as shown in Figure 2



Figure 19 Change Panel password

## 2.3. Enable/Disable Buzzer

The panel is fitted with a buzzer that when enabled, will sound intermittently with 10 sec ON and 30 sec OFF repeated cycle to convey the presence of fault. Once enabled, any event that causes error as listed in section 7 panel will start the ON/OFF cycle of the buzzer. The buzzer can be muted/unmuted by toggling the alarm control button on the bottom left corner of “Home screen” as shown in Figure 8

To change the state of the buzzer follow the steps as shown in Figure 20

- Go to “Home Screen” > “Engineer Mode” > “Device Settings” window
- Enter 6 digit password to gain access and press “Ent”
- In the “Device Settings” window select “Settings” tab
- Using radio button choose new state of buzzer either “Disable Buzzer” or “Enable Buzzer”
- To commit changes press “Set Buzzer” button

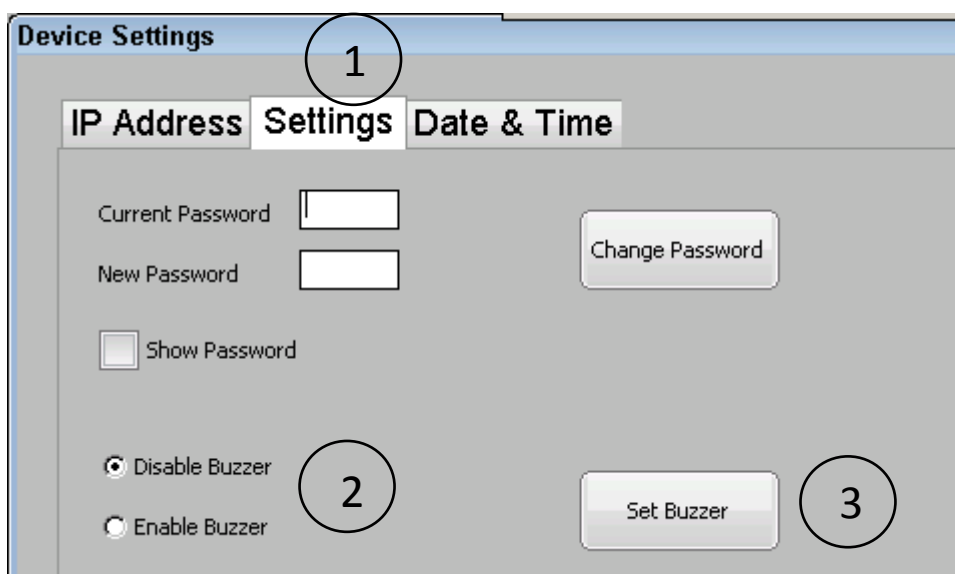


Figure 20 Buzzer Setup



## 2.4. Edit Maintenance Contact Info

To edit maintenance contact information, follow the steps as shown in Figure 21

- Go to “Home Screen” > “Engineer Mode” > “Device Settings” window
- Enter 6 digit password to gain access and press “Ent”
- In the “Device Settings” window select “Settings” tab
- Press “Edit Contact” button to open keypad window
- Set new or edit existing contact information on edit box of keypad and press “Enter/Close” button on keypad to commit changes

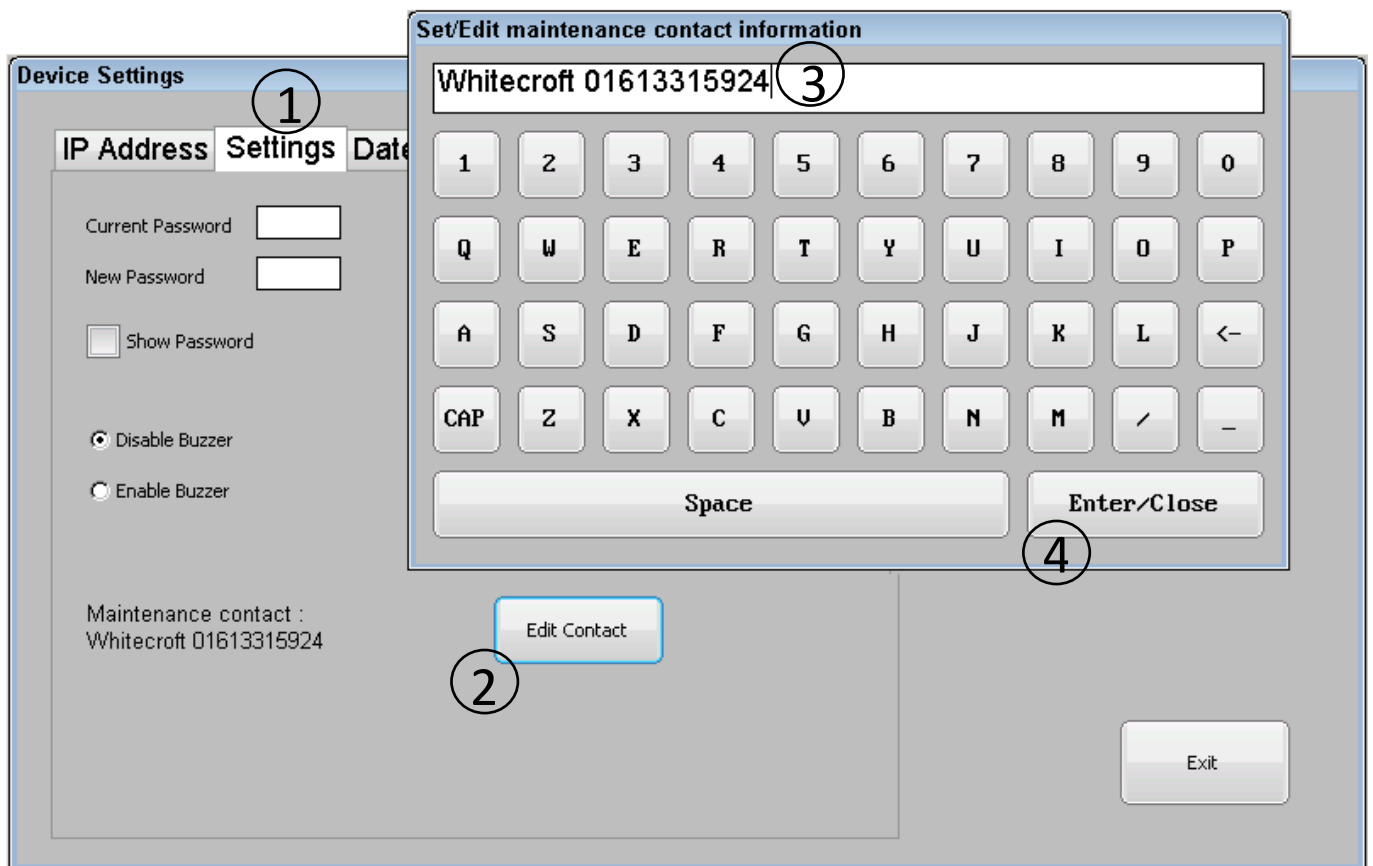


Figure 21 Edit Maintenance Contact Information

## 2.5. Network Settings

The panel is capable of being remotely accessed for most of its features over a remote viewing client such as “VNC Viewer”, in addition it can sync test logs with application “Routelink”. The configuration of an IP address and port no. required to host a “VNC Server” and the “Routelink Server” is detailed in following section.

To change the IP address of panel, follow the steps 1 through 5 as shown in Figure 22

- Go to “Home Screen” > “Engineer Mode” > “Device Settings” window
- Enter 6 digit password to gain access and press “Ent”
- In the “Device Settings” window select “IP Address” tab
- Click inside the edit box provided for “IP Address” to bring the Numpad up and edit or enter a valid IP address for the local network
- Click on the edit box provided for “Subnet Mask” to move focus of the Numpad and enter a valid subnet mask for the local network
- Finally click on edit box provided for “Gateway” to move focus of the Numpad and enter a valid gateway address for the local network
- Close the Numpad by clicking on “Ent/Close” button and press “Set Address” to commit changes to the panel
- The result of the change will be confirmed by popup window

To change the port number for “VNC Server” follow the steps 6 through 8 as shown in Figure 22

- On the “IP Address” tab in the “Device Settings” window, click on the dropdown menu assigned for the “VNC Server Port No” and choose the required port no.
- Click on “Set Port” to commit port change of the “VNC Server”
- The result of the change will be confirmed by popup window

\*By default the VNC server runs on port “5900”, although to enable the user to distinguish between multiple panels within the same premises a different port no. for each different panel will be required. How to access the panel remotely is detailed in section 6.

To change the port number for “Routelink Server” follow the steps 9 through 11 as shown in Figure 22

- On the “IP Address” tab in the “Device Settings” window, click on the dropdown menu assigned for the “Routelink Server Port No” and choose the required port no.
- Click on “Set Port” to commit port change of the “Routelink Server”
- The result of the change will be confirmed by popup window

\*By default the Routelink Server runs on port “50,000”, although to enable the user to distinguish between multiple panels within the same premises a different port no. for each different panel will be required. For more information on syncing the panel remotely, refer to user manual of “Routelink” application.

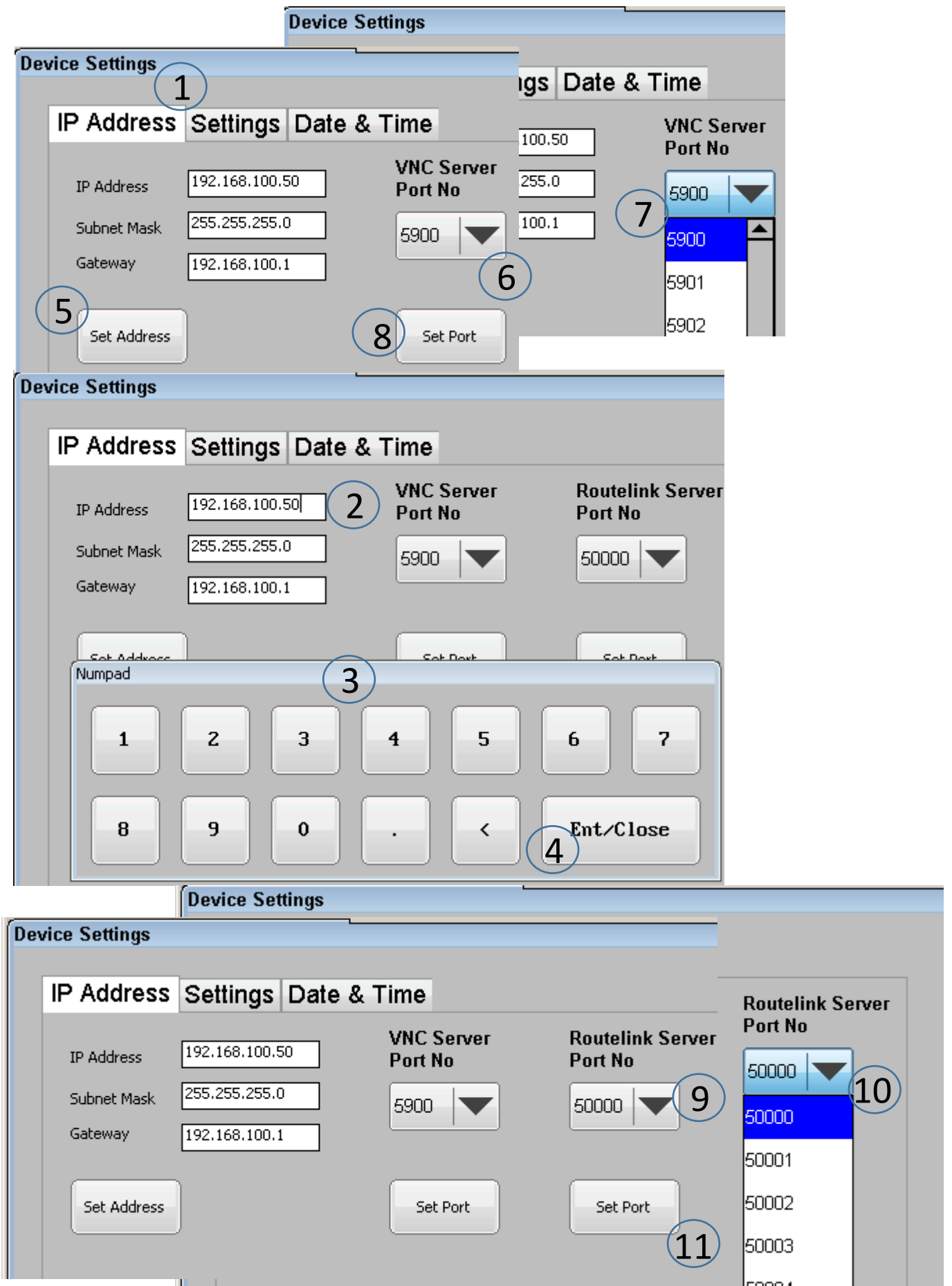


Figure 22 Network Settings

## 2.6. Edit Assigned Panel Location

Apart from at the time of DALI bus commissioning process, the assigned panel's location can be changed from the "Hardware Information" window.

To edit assigned panel's location, follow the steps as shown in Figure 23

- Go to "Home Screen" > "Engineer Mode" > "Hardware Info" window
- Enter 6 digit password to gain access and press "Ent"
- Press and hold (>1 sec) on "Panel Location -" text then press on "Edit Panel Location" context menu option to open keypad dialog
- Edit current panel's location and press "Enter/Close" button on keypad dialog
- Confirmation of changed panel location will be shown in message box dialog

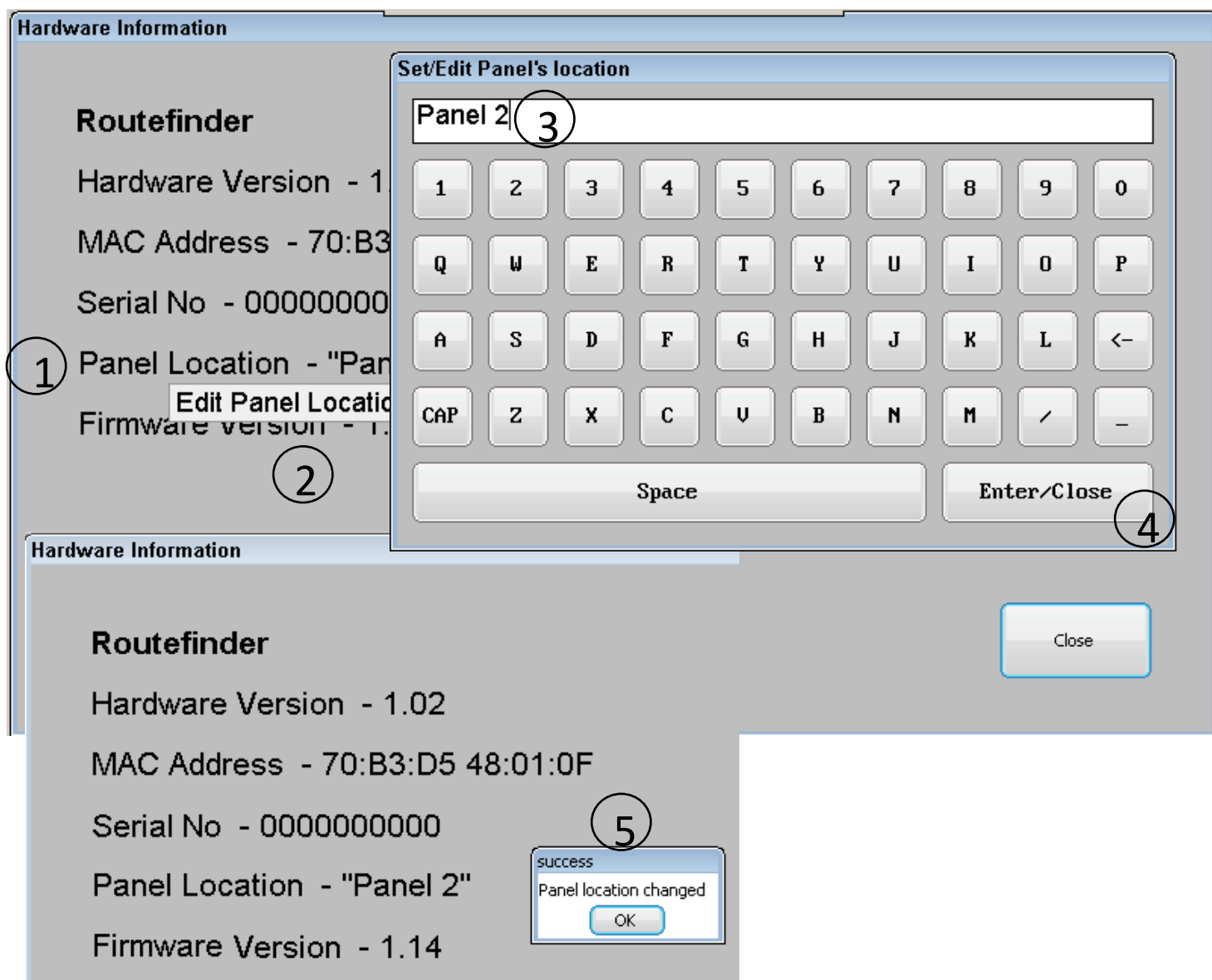


Figure 23 Edit Panel Location

## 3. Commissioning the System

### 3.1. Commissioning the DALI Network

The commissioning of a DALI network requires the assigning of short addresses (0-63) to all available DALI luminaires connected to an individual DALI bus. This is a major change to a DALI network as any existing commissioned DALI luminaires that are on the system will have their short address randomly reassigned. Therefore it is advised that the commissioning of a DALI system is only done by competent person at the time of installation or if a major change is required in the DALI network.

Note: every time either of DALI buses gets commissioned all past test logs and luminaire names on the selected bus are erased permanently. In addition any enabled automatic tests are disabled permanently. **If any of this information is required to be kept it is recommended to export past test's logs and identity information of the luminaires as described in section 5.2.**

To commission the DALI network follow the steps as shown in Figure 24 and Figure 25

- Go to "Home Screen" > "Engineer Mode" > "Network Config" window
- Enter 6 digit password to gain access and press "Ent"
- Select required DALI bus from treeview widget and select "Commission" command from listed commands
- Further select "New Installation" option from submenu and press "Start" button on "Network Config" window
- This will bring pop up dialog with warning message, to proceed further press "Yes" on dialog
- To authorise process enter 6 digit password and press "Ent" on password window
- Set required panel location (min 1 and max 25 characters). This panel location will become part of file name whilst exporting past test's logs and identity information of luminaire. Same is also visible in "Home Screen" > "Engineer Mode" > "Hardware Info" window.
- Set required maintenance team's contact information (min 0 and max 25 characters). This contact no is displayed upon clicking "Call engineer" button available on "Home Screen". Which can be used by end user to contact maintenance team upon encountering error.
- After entering maintenance contact information the commissioning starts by pressing "Enter/Close" button on keypad
- Feedback for beginning of commissioning process is displayed in bottom part of "Network Config" window. Commissioning process cannot be interrupted and may take few minutes
- Upon finishing the commissioning all commissioned luminaire on the selected bus are listed in treeview widget.
- To commission a different bus repeat above steps after selecting new bus.

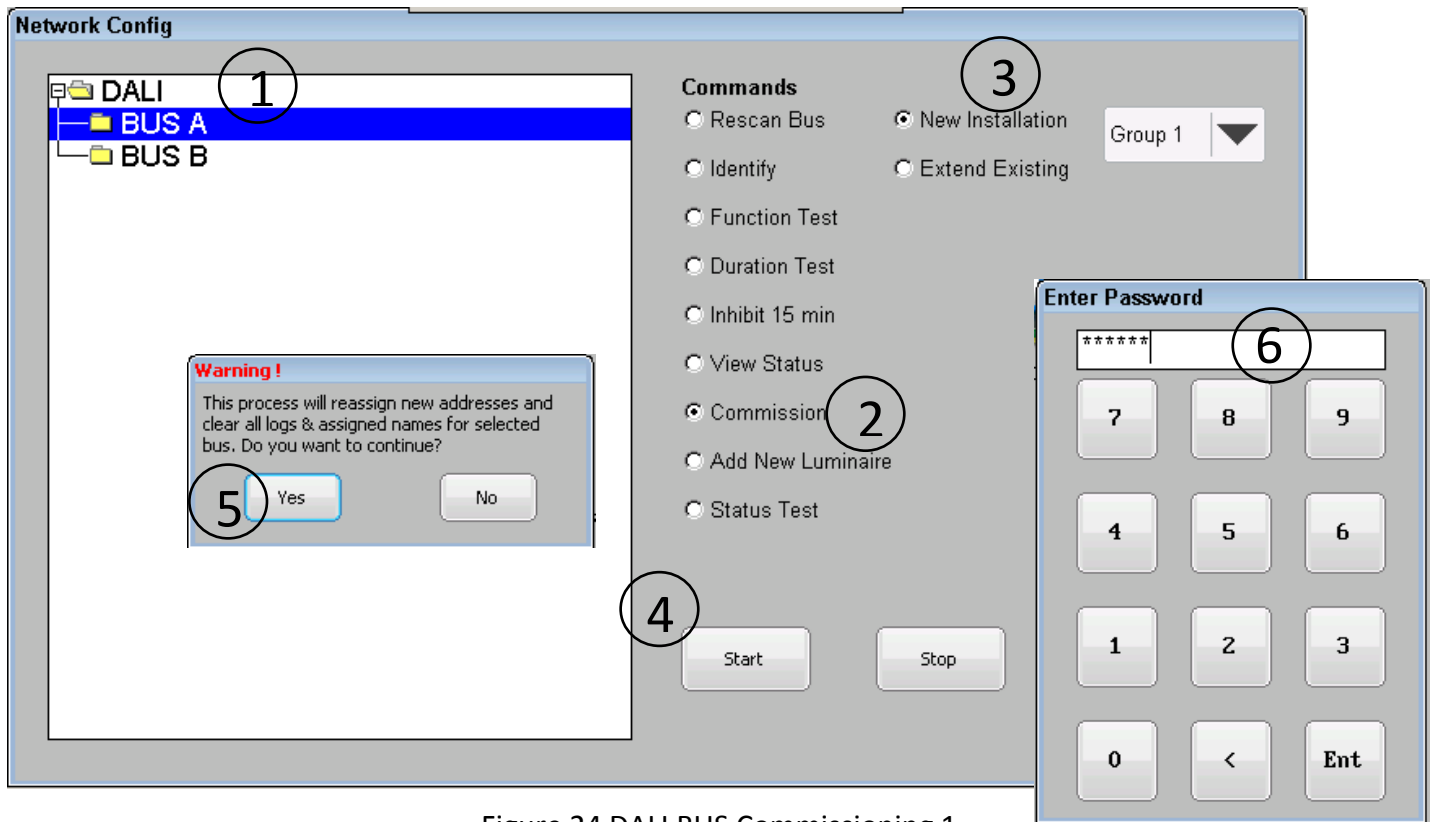


Figure 24 DALI BUS Commissioning 1

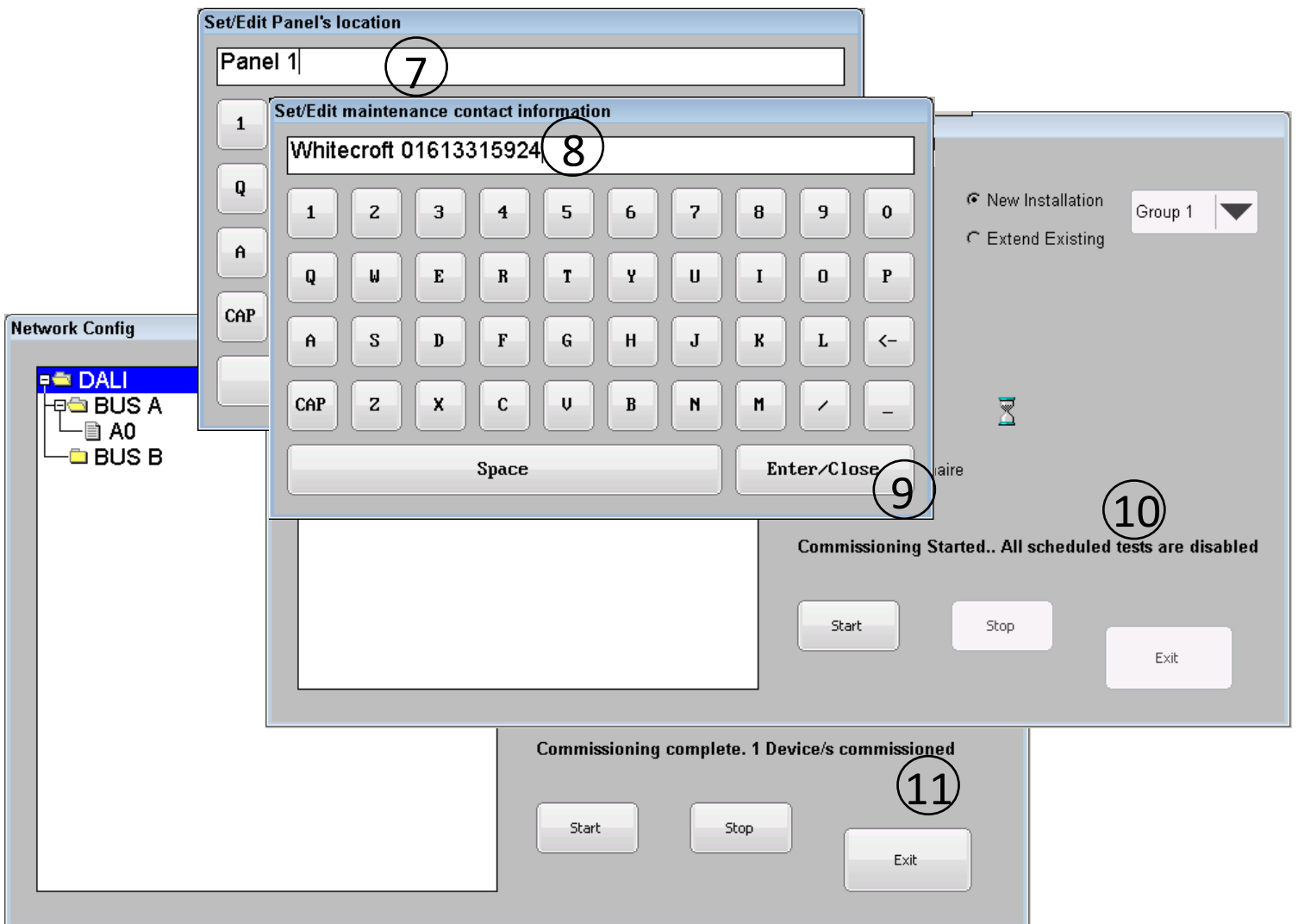


Figure 25 DALI BUS Commissioning 2

## 3.2. Extending the DALI Network

A previously commissioned DALI bus can be further extended to add a number of new luminaires (having non-assigned short addresses) to the end of an existing luminaire list. Extending the DALI bus does NOT affect any of the existing luminaires, nor does it erase any test logs or assigned luminaire names for selected bus.

To extend existing DALI network follow the steps as shown in Figure 26 and Figure 27

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select required DALI bus from treeview widget and select “Commission” command from listed commands
- Further select “Extend Existing” option from submenu and press “Start” button on “Network Config” window
- This will bring pop up dialog with warning message, to proceed further press “Yes” on dialog
- To authorise process enter 6 digit password and press “Ent” on password window
- Set required panel location (min 1 and max 25 characters). This panel location will become part of file name whilst exporting past test’s logs and identity information of luminaire. Same is also visible in “Home Screen” > “Engineer Mode” > “Hardware Info” window.
- Set required maintenance team’s contact information (min 0 and max 25 characters). This contact no is displayed upon clicking “Call engineer” button available on “Home Screen”. Which can be used by end user to contact maintenance team upon encountering error.
- After entering maintenance contact information the extension process starts by pressing “Enter/Close” button on keypad
- Feedback for beginning of extension process is displayed in bottom part of “Network Config” window. Extension process cannot be interrupted and may take few minutes
- Upon finish all newly commissioned luminaire for the selected bus are added to end of existing list in treeview widget.
- To extend a different bus repeat above steps after selecting new bus.

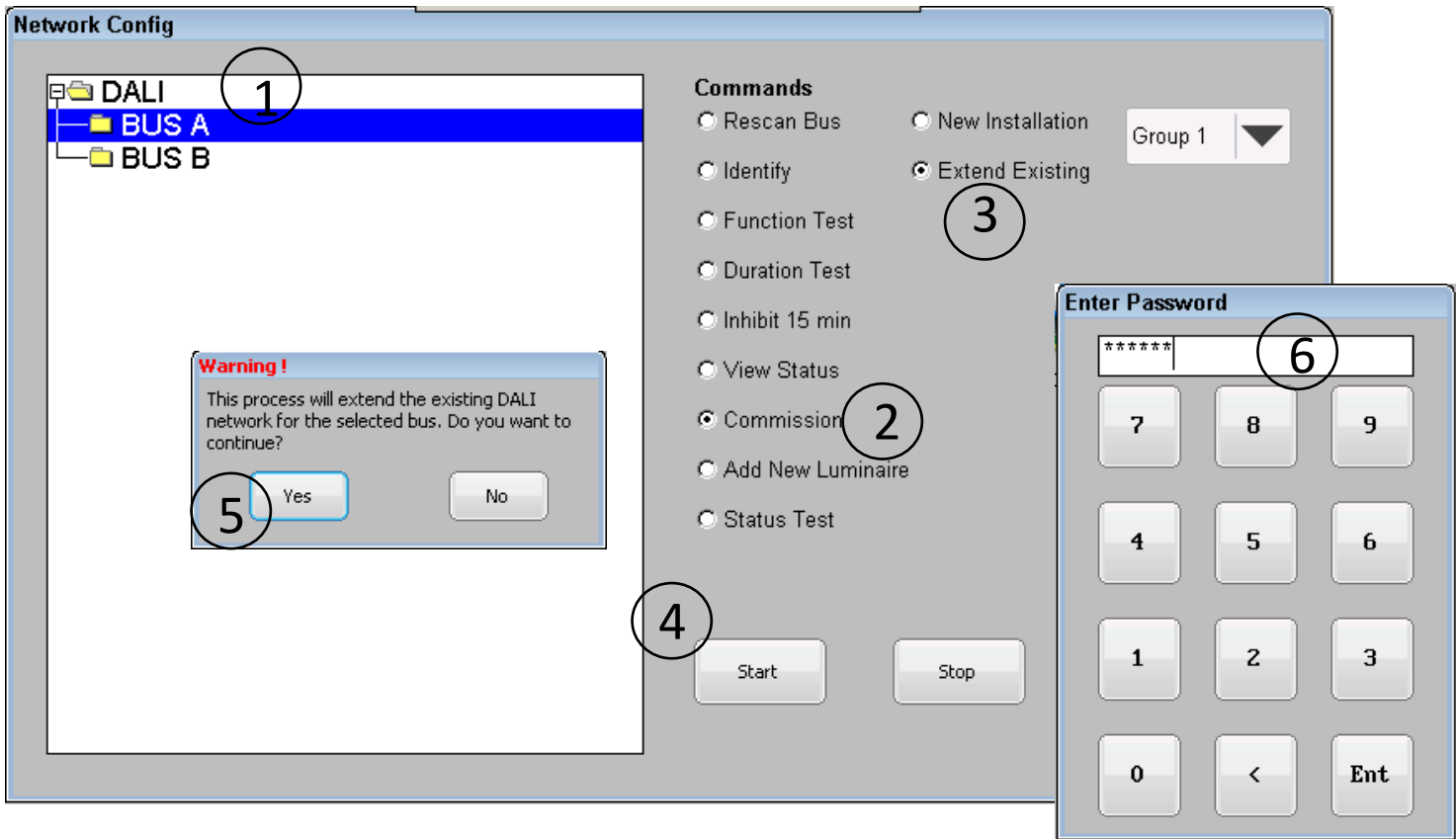


Figure 26 DALI Bus Extension 1

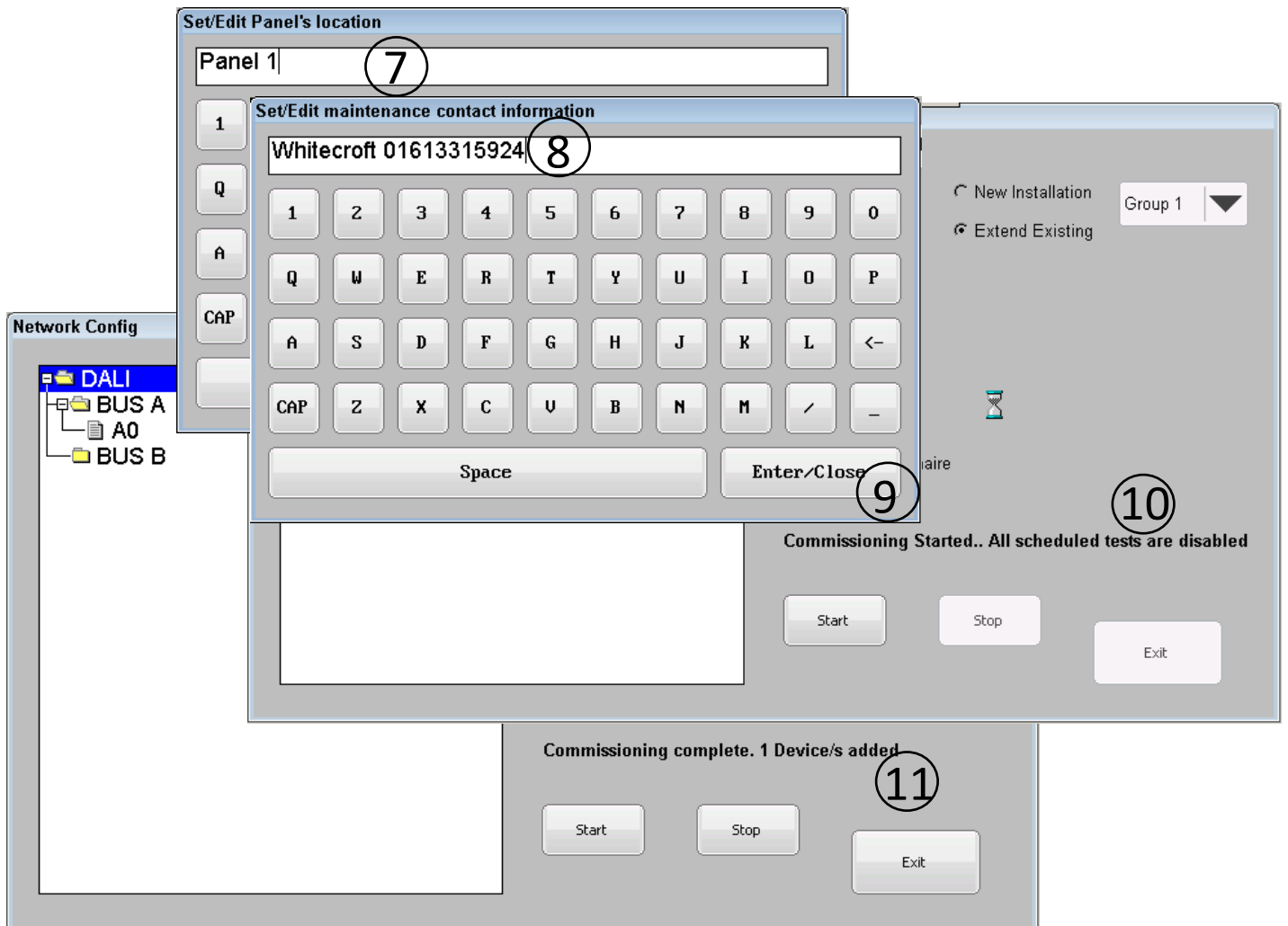


Figure 27 DALI Bus Extension 2



### 3.3. Identifying Commissioned Luminaires

Identification of a commissioned luminaire is relevant in the situation where commissioning engineer wants to identify and/or assign a meaningful name to the luminaire based on its physical location within a premises. For such a purpose, the panel features an “Identify” command for either placing required luminaire / bus in identification mode OR for filtering out short address of required luminaire. Note that the indication of the identify command may differ from manufacturer to manufacturer.

#### 3.3.1. Place Luminaire(s) in Identification Mode

To place luminaire(s) in identification mode follow the steps as shown in Figure 28

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Identify” command from listed commands and select “Std. Identify” option from submenu
- Choose required selection from treeview widget and press “Start” button on “Network Config” window
- Selected luminaire now should be in identification mode. Note identify process runs continuously until “Stop” button is pressed.

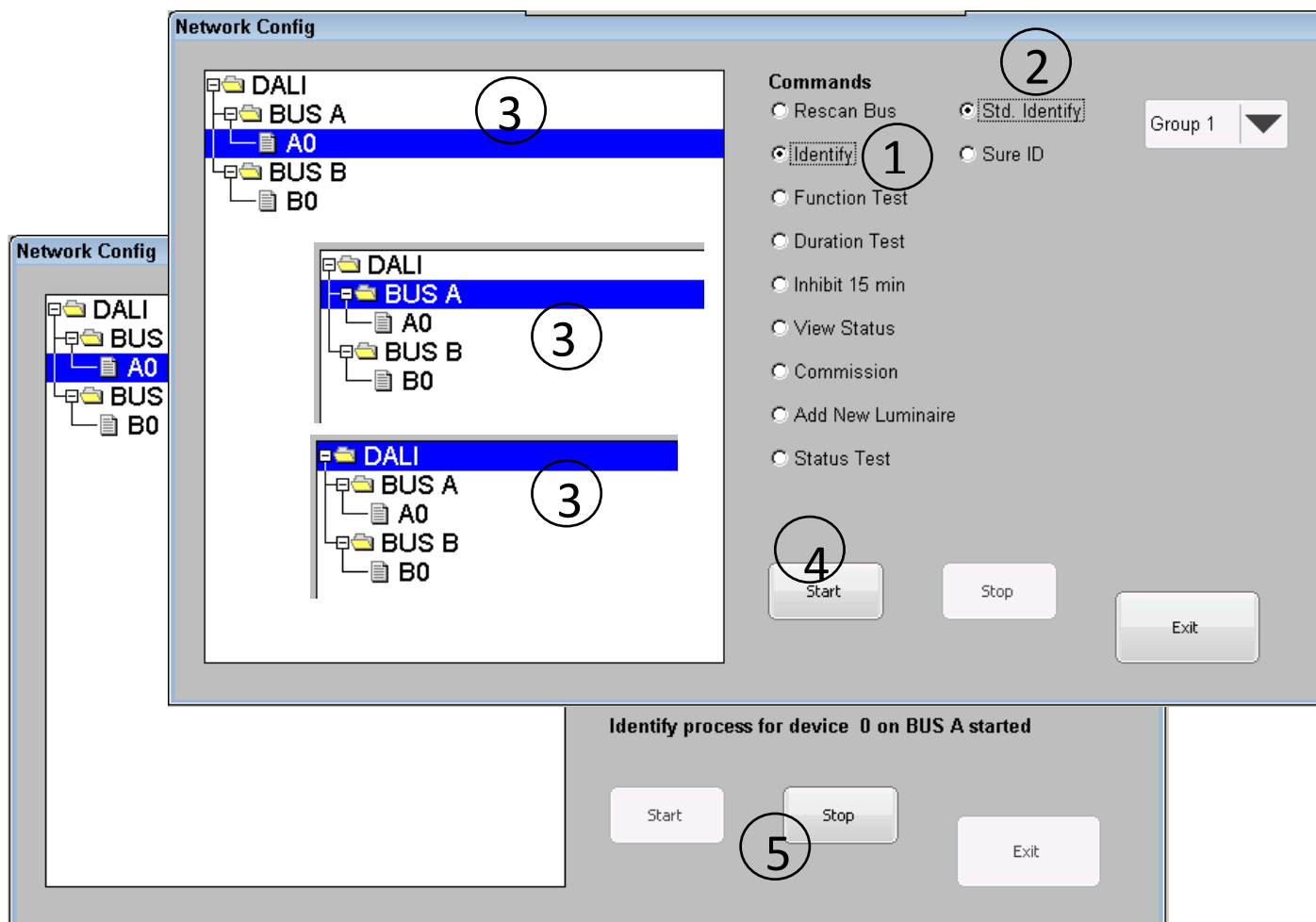


Figure 28 Identify Luminaire

### 3.3.2. Identifying Luminaire's Short Address

Following section details steps to find short address of luminaire which needs an observer standing under required luminaire while answering questions on Routefinder panel.

To find the short address of a required luminaire follow the steps as shown in Figure 29

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Identify” command from listed commands and select “Sure ID” option from submenu
- Press “Start” button on “Network Config” window this will open informative dialog. To proceed further press “Yes” on the dialog box
- On the newly opened question dialog box press “Yes” or “No” while observing identification state of luminaire in question, continue until the progress bar reaches 100%
- At the end of the filtering process the short address of luminaire that was being queried will be displayed on dialog box. To do a further search of the short address of another luminaire press “Yes” else press “No/Quit”.
- With the short address acquired from above process user defined name / location can be assigned to luminaire using section 3.4.1

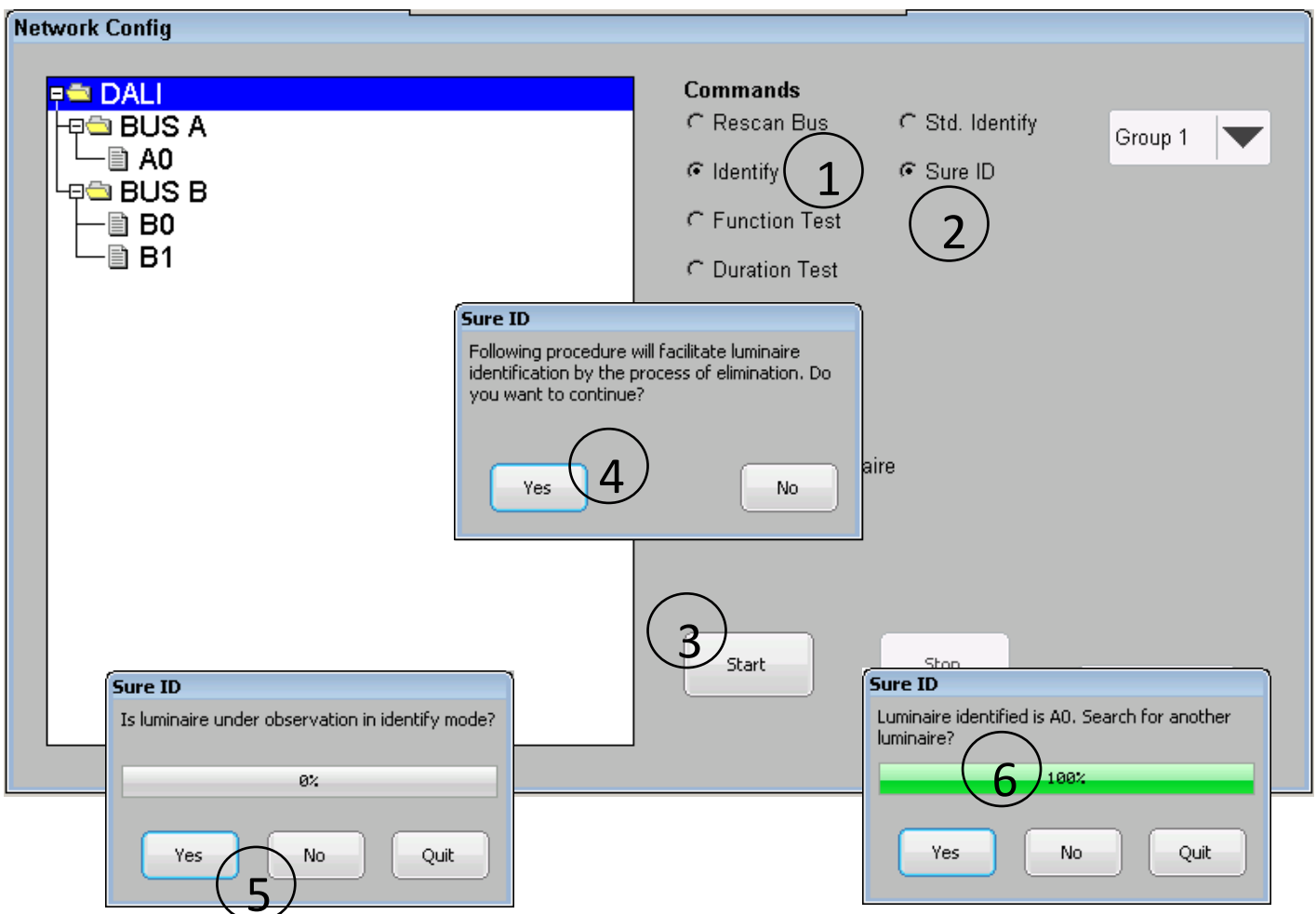


Figure 29 Find Short Address

## 3.4. Assigning User Defined Names to Luminaire

For the unique identification of a luminaire, the panel supports a 25 character wide arbitrary name for each individual luminaire. Supported characters are as follows: A-Z, a-z, 0-1, ' ', '\_' or '/'. A name can be assigned to an individual luminaire by using the touch screen as described in section 3.4.1 or by importing as list of names using a CSV file as described in section 3.4.3.

### 3.4.1. Individual Name Assignment

To Set/Edit the name of a luminaire, follow the steps as shown in Figure 30

- Go to "Home Screen" > "Engineer Mode" > "Network Config" window
- Enter 6 digit password to gain access and press "Ent"
- Press and hold (>1 sec) on the required luminaire from treeview widget to open context menu. On context menu select "Edit Device Name" to open keypad
- Type in new or edit existing assigned name of the luminaire and press "Enter/Close" button on keypad to finish.
- Assigned/edited name will be updated immediately and will be reflected in test logs.

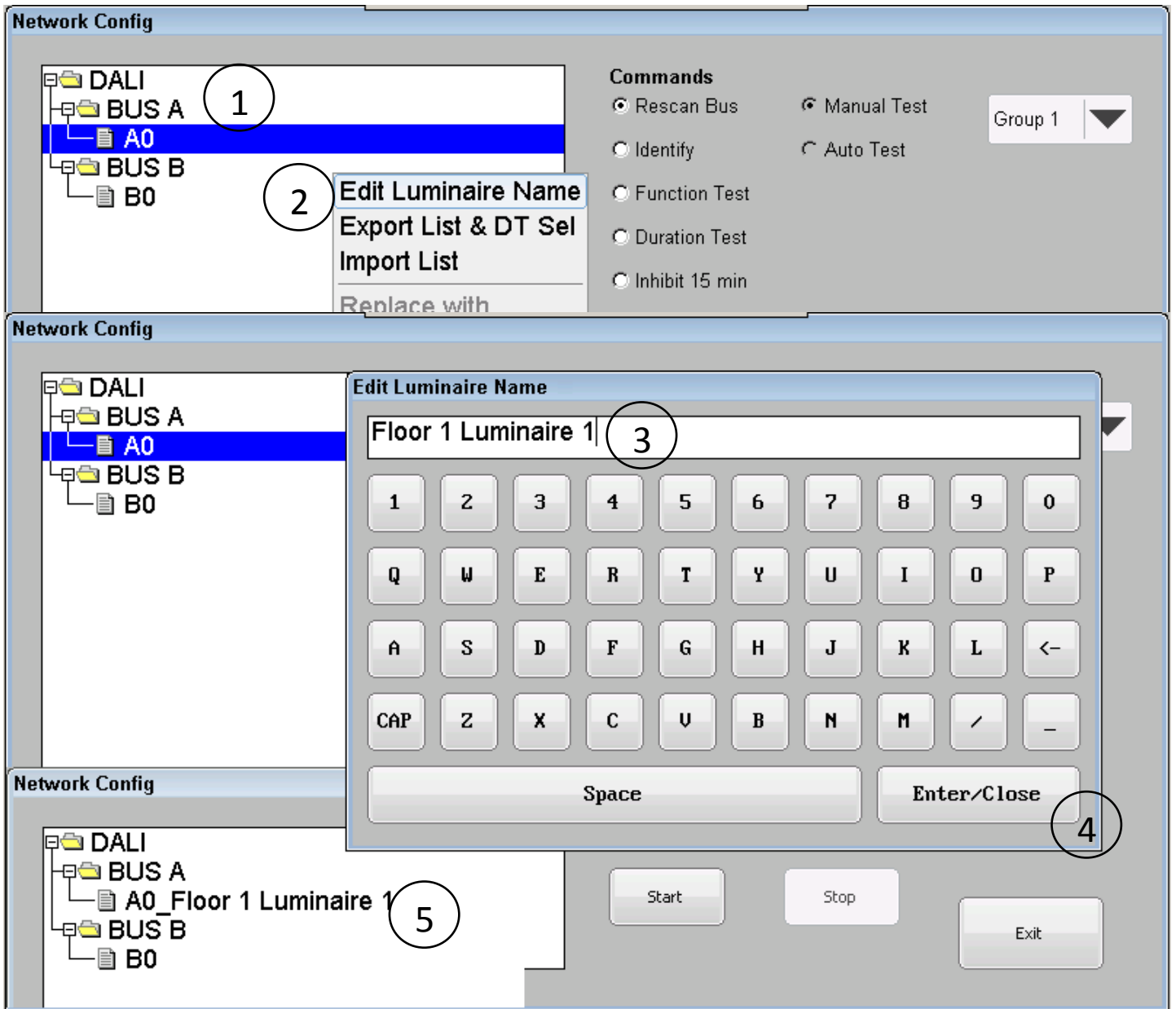


Figure 30 Individual Luminaire Name Assignment

### 3.4.2. Exporting Assigned Luminaire Names and Duration Test Group's Selection

To keep a record of the short address with their assigned names and individual group's selection information for automatic Duration Test, the panel supports exporting the name list and Duration Test selection as a table in a CSV file on the USB flash drive.

To export name list of luminaire and DT selection follow steps as shown in Figure 31

- Go to "Home Screen" > "Engineer Mode" > "Network Config" window
- Enter 6 digit password to gain access and press "Ent"
- Insert USB Flash drive into USB socket located under front cover of panel as shown in Figure 2
- Press and hold (>1 sec) inside the treeview widget to open context menu and select "Export List & DT Sel" option on context menu.
- The result of the luminaire name list export will be confirmed by pop up dialog.

The process will create a CSV file in the root directory of USB flash drive with name "xxx\_LuminaireNames.csv" where "xxx" represents the assigned name of the panel. Sample of exported name list and DT selection table is shown in appendix section 9.2

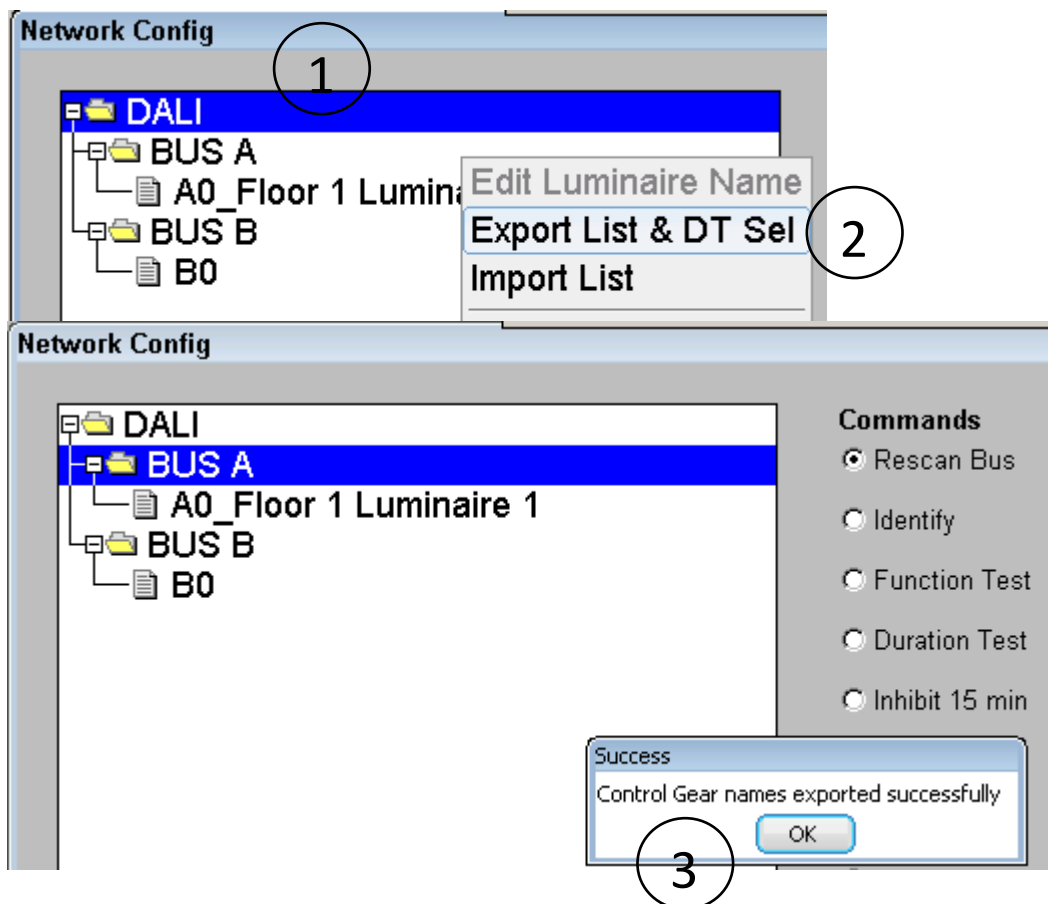


Figure 31 Export Name list of Luminaire

### 3.4.3. Importing Assigned Luminaire Names

After completion of commissioning and identification process as described in section 3.1 and 3.3 the assigned names of identified luminaires can be quickly be imported to the panel as a list saved in a CSV file. The method used to create such a CSV file is described in section 9.1, alternately the user can use the export process described in section 3.4.2 to create the required CSV file in USB flash drive and then edit the same, and use for importing a name list as described in following section.

To import the name list of luminaire names follow the steps as shown in Figure 32

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Insert the USB Flash drive in to USB socket located under front cover of panel as shown in Figure 2 with the file “xxxx\_LuminaireNames.csv” placed in the root directory of flash drive. Where “xxxx” represents the assigned name of panel.
- Press and hold (>1 sec) inside the treeview widget to open context menu and select “Import List” on context menu.
- The result of luminaire names list import will be confirmed by pop up dialog.

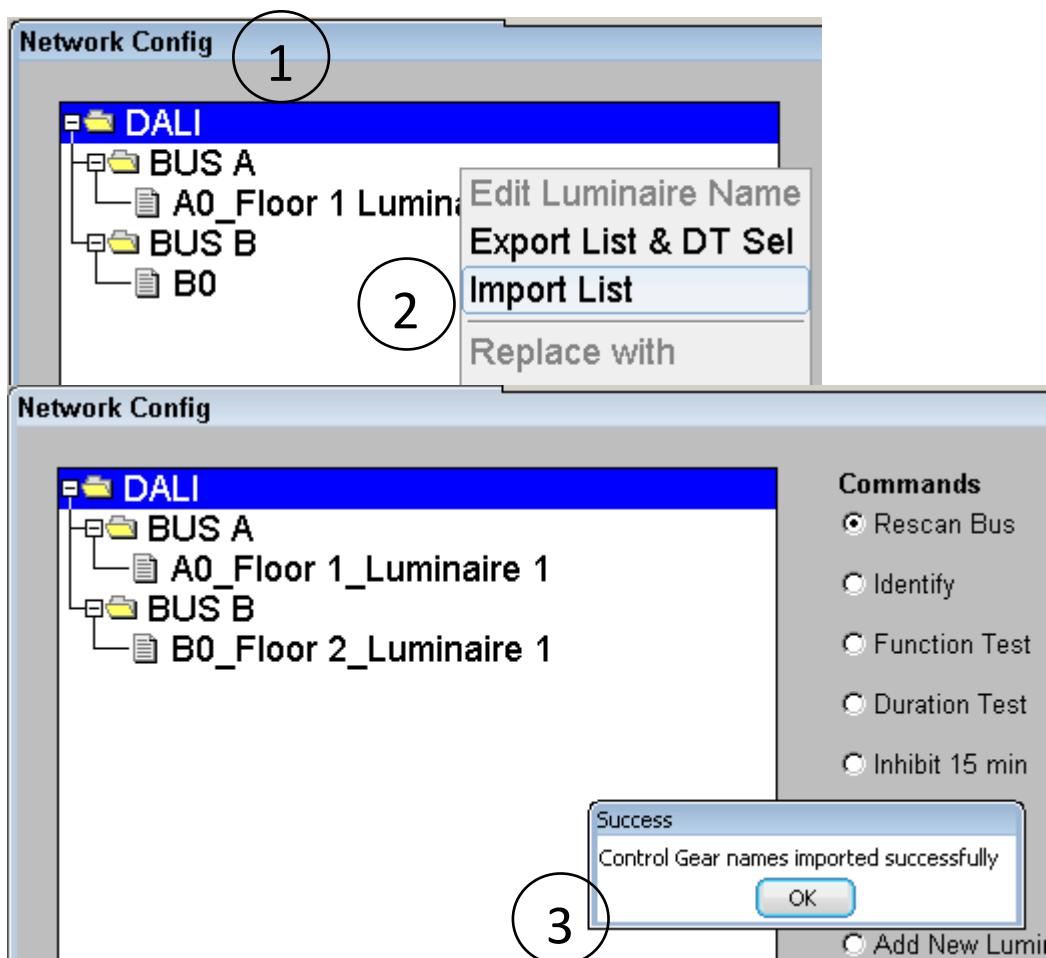


Figure 32 Import Name list of Luminaire

### 3.5. Adding a New Luminaire

After completing the commissioning process it is possible to add a new luminaire to the existing DALI network if the maximum number of 64 luminaires per bus is not exceeded. It is also possible to replace a faulty luminaire by using the panels “Add New Luminaire” function. This function scans an individual DALI BUS searching for un-commissioned luminaires with a masked short address and lists it in the treeview widget of the “Network Config” window. An un-commissioned luminaire can be replaced or added to end of existing list assuming the maximum number of 64 luminaires per bus is not exceeded. Note before proceeding it is assumed that a single un-commissioned luminaire is attached to DALI BUS.

To search for a new luminaire follow steps as shown in Figure 33

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select the required DALI bus from treeview widget, select “Add New Luminaire” command from list and press “Start” button on “Network Config” window
- This will bring pop up dialog with warning message, to proceed further press “Yes” on dialog
- To authorise process enter 6 digit password and press “Ent” on password window to start searching
- Upon finding the single un-commissioned luminaire, under the selected BUS a new entry will be added to the treeview widget named “Un-commissioned”
- Depending on the requirement proceed to next section 3.5.1 OR 3.5.2

Note:

\*If the panel finds ‘0’ or > ‘1’ luminaire/s, a new entry will not be added to treeview widget.

\* The newly listed luminaire exist on the treeview widget temporarily only and on closing the “Network Config” window will remove the new entry “Un-commissioned”.

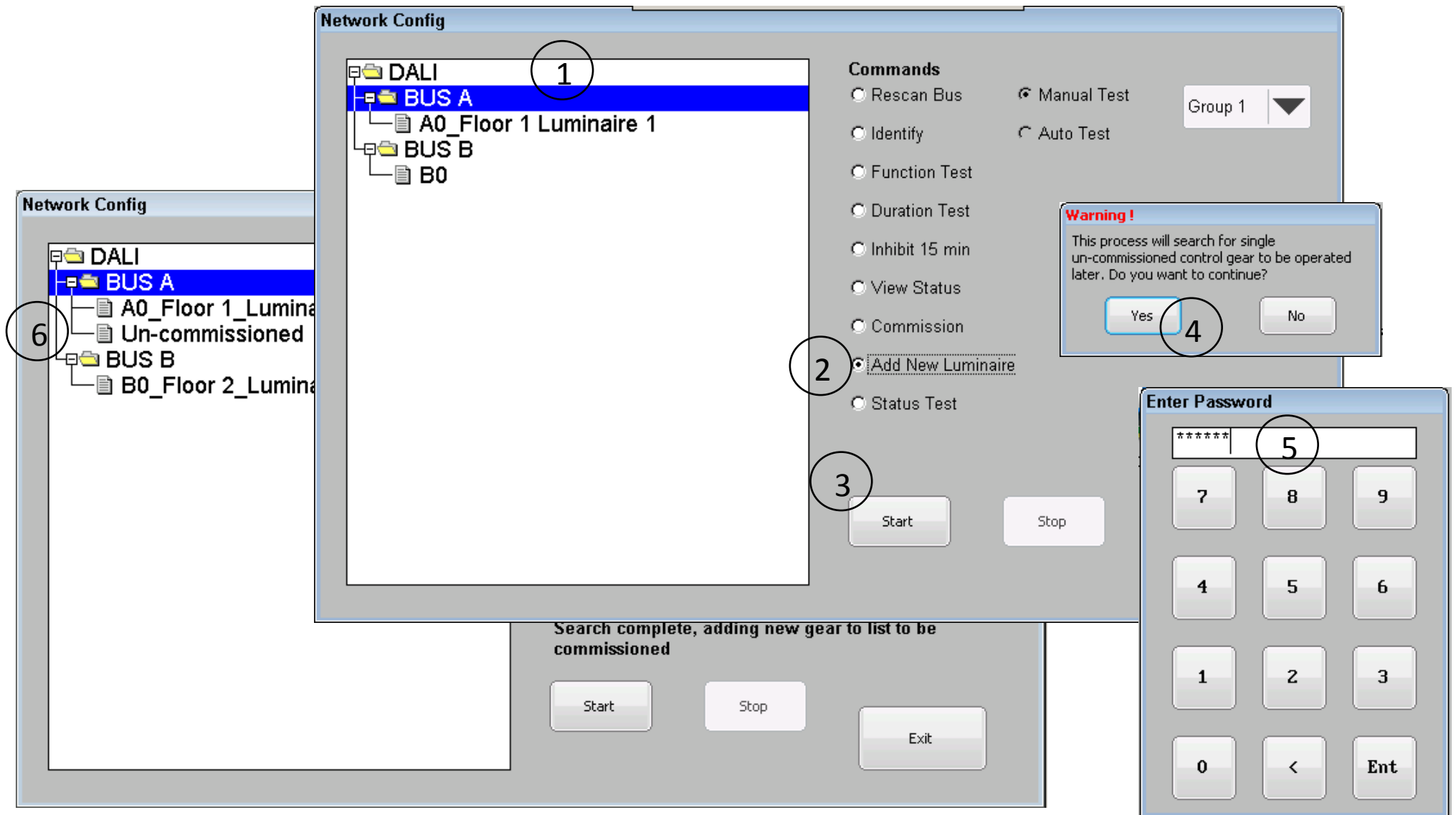


Figure 33 Search New Luminaire



### 3.5.1. Adding a New Luminaire to the End of the List

To add a newly listed un-commissioned luminaire follow steps as shown in Figure 34

- Press and hold (> 1 sec) on “Un-commissioned” luminaire to open context menu
- On context menu select “Add to end of list” option to start commissioning process
- Upon finishing the commissioning process a new luminaire will be added to end of the existing luminaire list

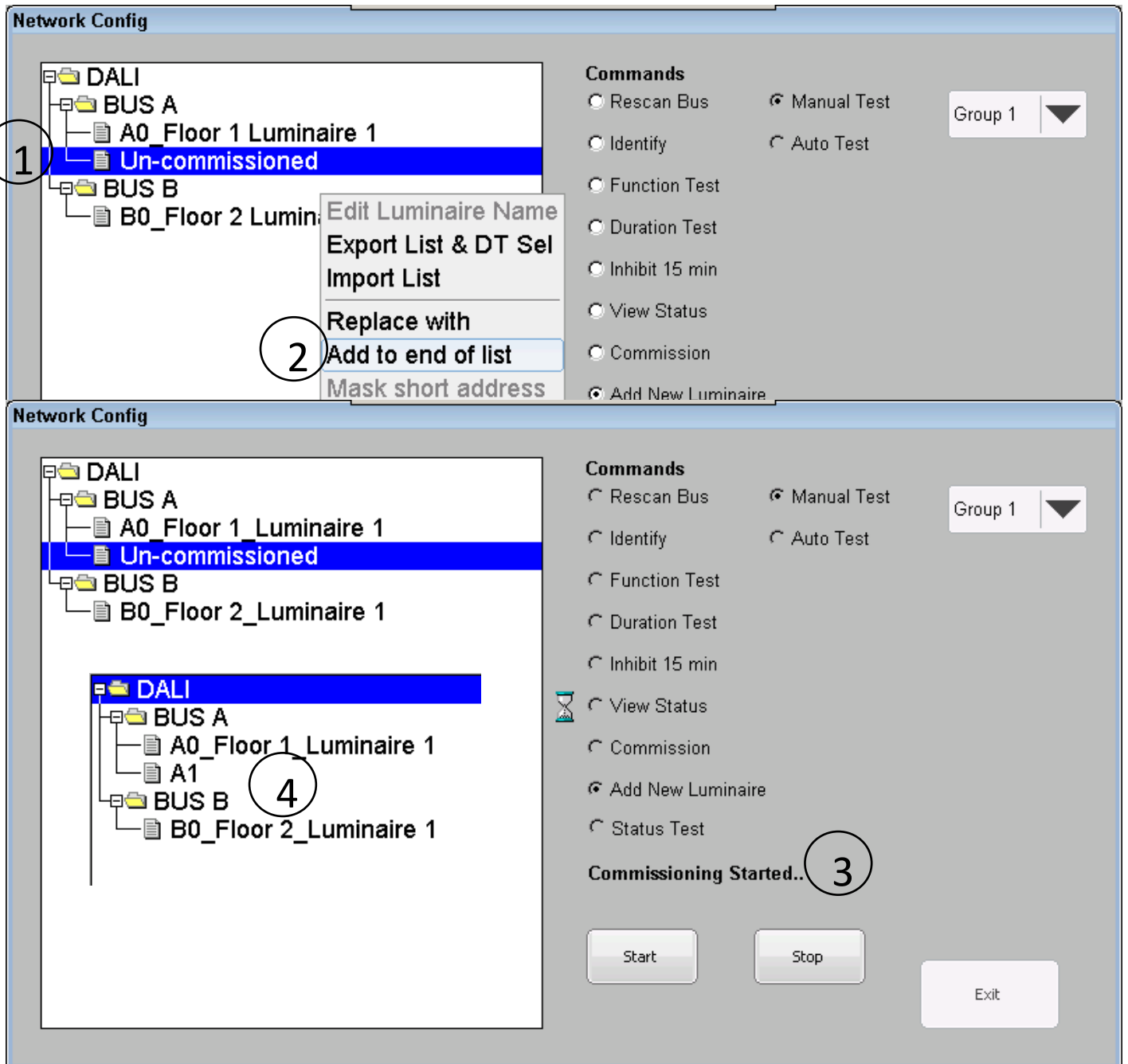


Figure 34 Add New Luminaire to End of List

### 3.5.2. Replace an Existing Luminaire

To replace an existing luminaire with a newly listed un-commissioned luminaire follow steps as shown in Figure 35

- Press and hold (> 1 sec) on the “Un-commissioned” luminaire to open context menu
- On context menu select “Replace with” option to open the Numpad
- Enter the commissioned luminaire’s short address to assign to the “Un-commissioned” luminaire, and press “Ent” to start the commissioning process
- Upon finishing the commissioning process the new luminaire will be assigned the existing luminaire’s short address

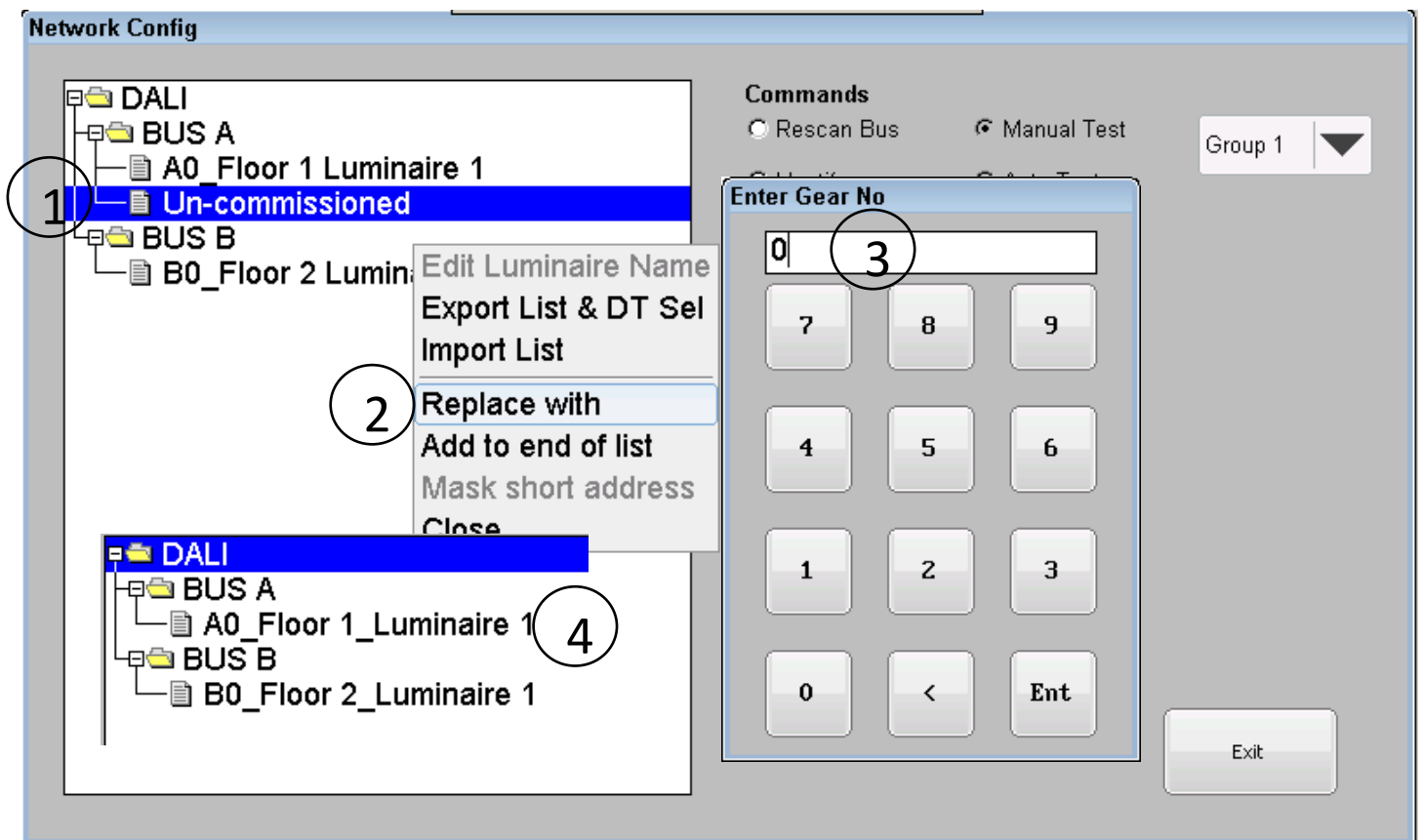


Figure 35 Replace Existing Luminaire

### 3.6. Additional Commands

To aid installation and for diagnosis of the DALI network the panel features 3 DALI commands i.e. “Rescan Bus”, “Inhibit 15 min”, “Mask short address” and “View Status”. Details of each command available is described in following section.

#### 3.6.1. Rescan Bus

The “Rescan Bus” is diagnostic command which scans selected DALI bus for accessibility of all logical addresses (0-63) and list them in treeview widget while comparing with past commissioned luminaires. For luminaires which are not accessible but were commissioned a minus sign ('-') is prefixed to its name, and for luminaires which were not commissioned but found on the bus, a plus sign('+') is prefixed to their name. For those luminaires that were commissioned and found, the name remains unchanged. Updated treeview widget changes are displayed temporary and would lose displayed structure upon closing of the “Network Config” window.

To execute “Rescan Bus” command follow the steps as shown in Figure 36

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- In the “Network Config” window select the required bus to be scanned
- From the list of commands select the “Rescan Bus” command using radio menu
- Press “Start” button on the “Network Config” window to perform scan
- Upon finishing the scan result will be displayed on bottom part of window

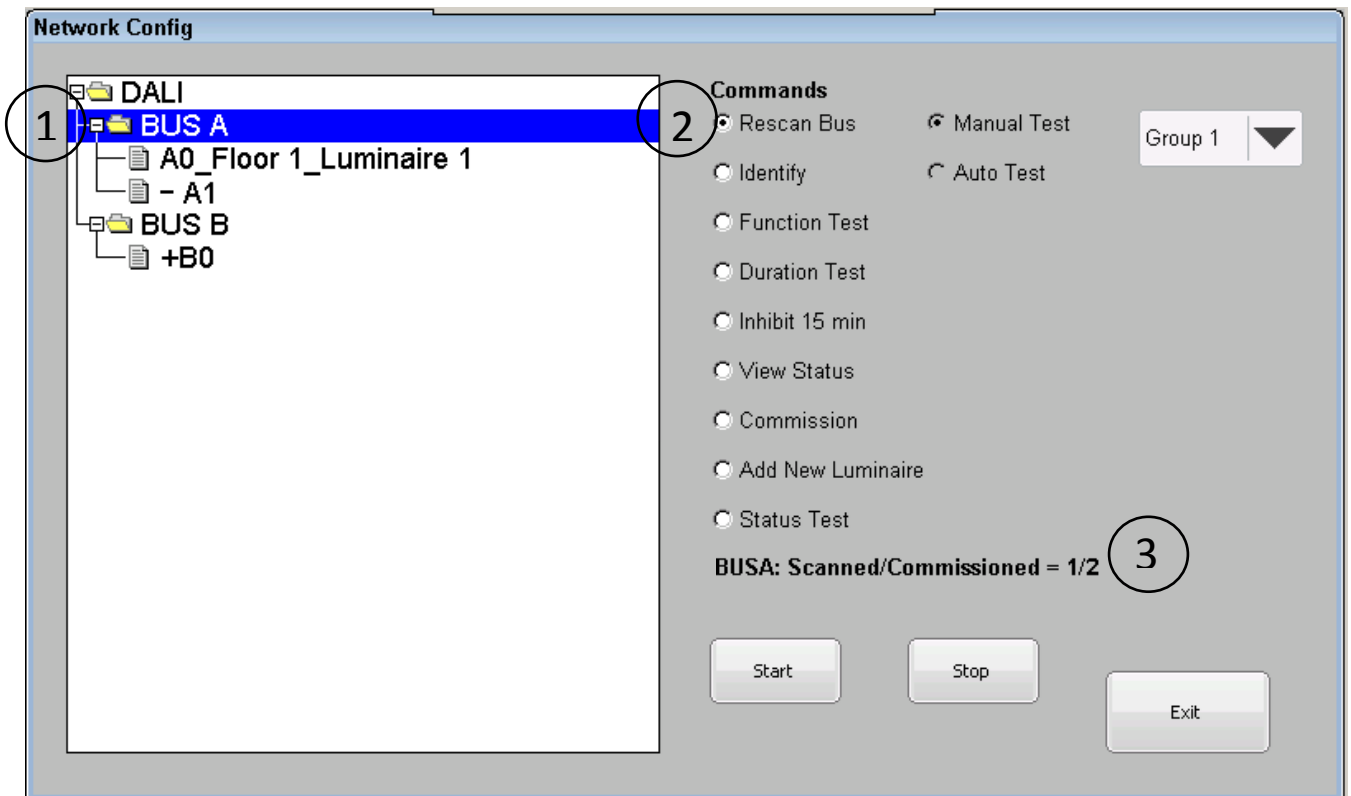


Figure 36 Rescan Bus

### 3.6.2. Inhibit 15 min

The “Inhibit 15 min” is standard “INHIBIT” command from the BS EN 62386-202 standard which puts a luminaire into an inhibit mode for next 15 minutes.

To start the inhibit mode for a required selection, in the “Network Config” window select required luminaire or BUS or whole DALI network, select “Inhibit 15 min” command from list of commands and press “Start” button; conversely press “Stop” button on the “Network Config” window to end inhibit mode.

### 3.6.3. View Status

The “View Status” is informative command which acquires the current status information of the individual luminaire and list them as table.

To execute “View Status” command follow the steps as shown in Figure 37

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- In “Network Config” window select required luminaire to be queried
- From list of commands select “View Status” command using radio menu
- Press “Get” button on “Network Config” window to acquire information
- For reachable luminaire current status will be displayed in new dialog window, status can be further updated by pressing “Refresh” button on dialog

\*Note: If selected luminaire is inaccessible then values in “Status” column of “Device Status” dialog will be shown by “???”

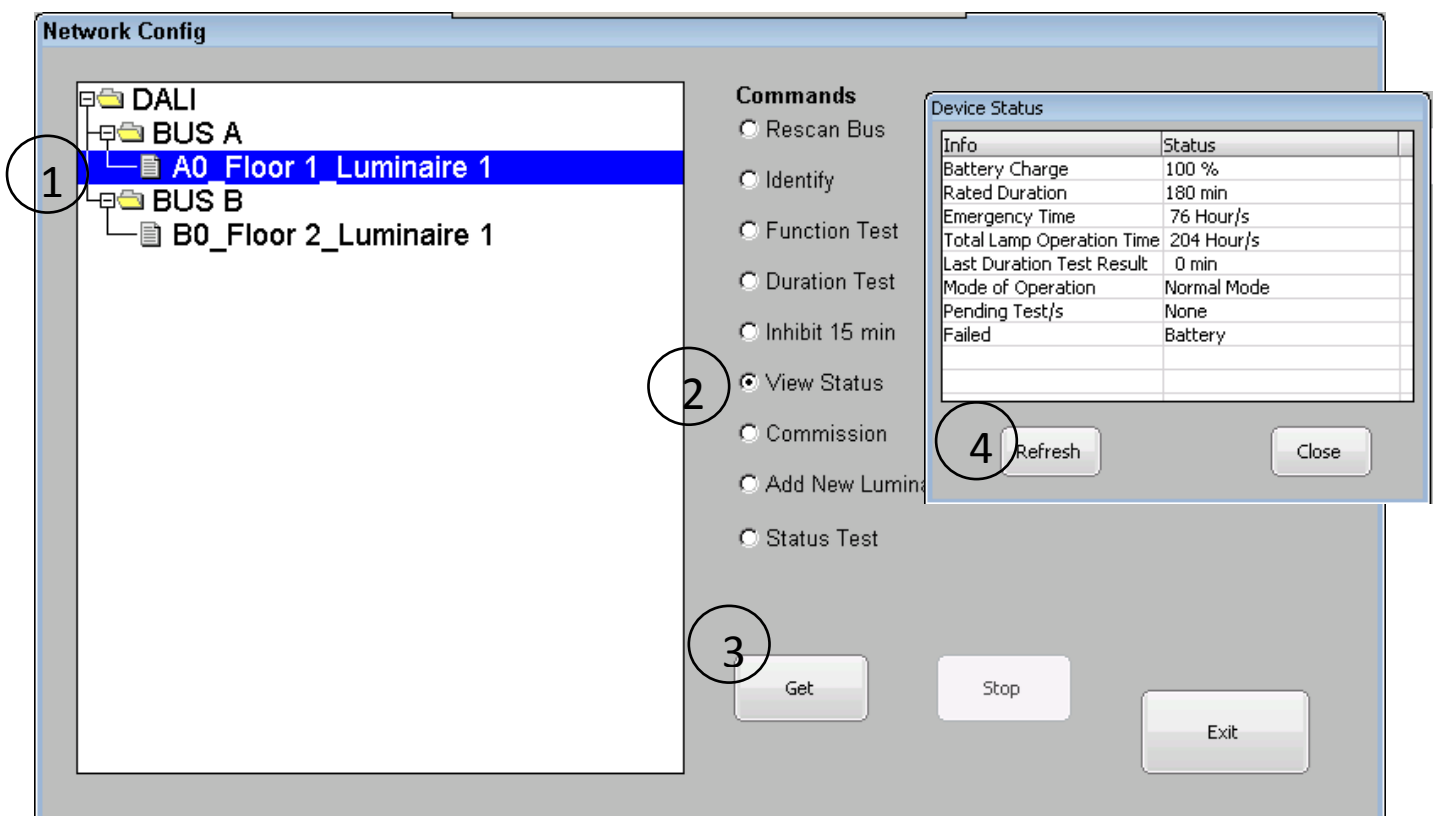


Figure 37 View Status

### 3.6.4. Mask Short Address

To aid the process of commissioning the panel features a command to mask a luminaire connected to DALI bus by removing its assigned short address. Executing this command will hide luminaire's visibility from panel but the command does NOT remove it from panel's memorised list and any test(s) performed by the panel will cause luminaire to be unreachable thus resulting in a failure on network.

Note this command can be operated on un-listed luminaires as well by listing them first using "Rescan Bus" command detailed in section 3.6.1, provided they have short address already assigned.

Masking luminaire allows it

- To be physically moved and assigned new short address. See section 3.5.1 and 3.2
- To be replaced with existing luminaire entry listed under same DALI bus in panel. See section 3.5.2
- To be hidden from panel's view.

To mask short address of required luminaire follow the steps as shown in Figure 38

- Go to "Home Screen" > "Engineer Mode" > "Network Config" window
- Enter 6 digit password to gain access and press "Ent"
- Press and hold (> 1 sec) on required luminaire to open context menu
- On context menu select "Mask short address" option
- After communicating with requested luminaire confirmation of command will be shown in a message box

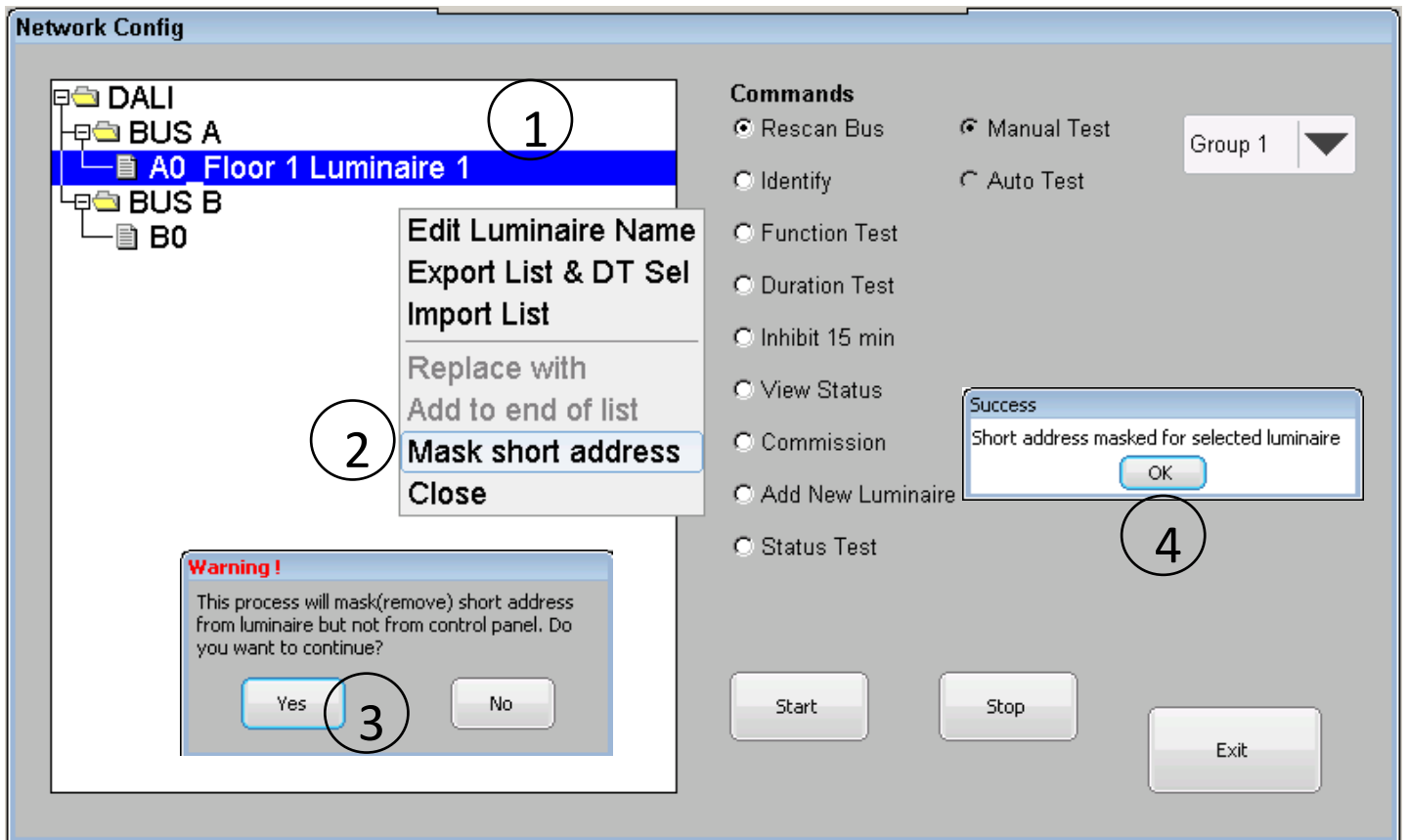


Figure 38 Mask short address

## 4. Configuring Tests

### 4.1. Automatic Testing

#### 4.1.1. Function Test

An automatic function test can be scheduled to occur monthly at a chosen date & time on all the emergency luminaires (Type 1) listed in treeview widget of “Network Config” window. Whilst performing this test if any luminaire does not complete the test or has not started the test; the panel will postpone acquiring the results for all luminaire in steps of 1 minute for next 60 minutes maximum. Any unresponsive luminaire will be marked as unreachable.

To setup/edit automatic function test follow the steps as shown in Figure 39

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Function Test” command from list of commands, select “Auto Test” from available command option and press “Setup Test” button on “Network Config” window.
- This will open a dialog window for changing date & time of test and state of function test. Newly opened dialog will reflect last date, time and state of automatic function test.
- Using scroll arrows on calendar widget choose new date of month, use spin boxes(HH,MM,SS) to set the required time of the day, choose new state of test(On/Off) and press “Schedule Test” to commit changes.
- Confirmation of change will be shown on pop up dialog.

\*Note: Date selection is only allowed up to the 28<sup>th</sup> day of the month to assure monthly activation of Function Test.

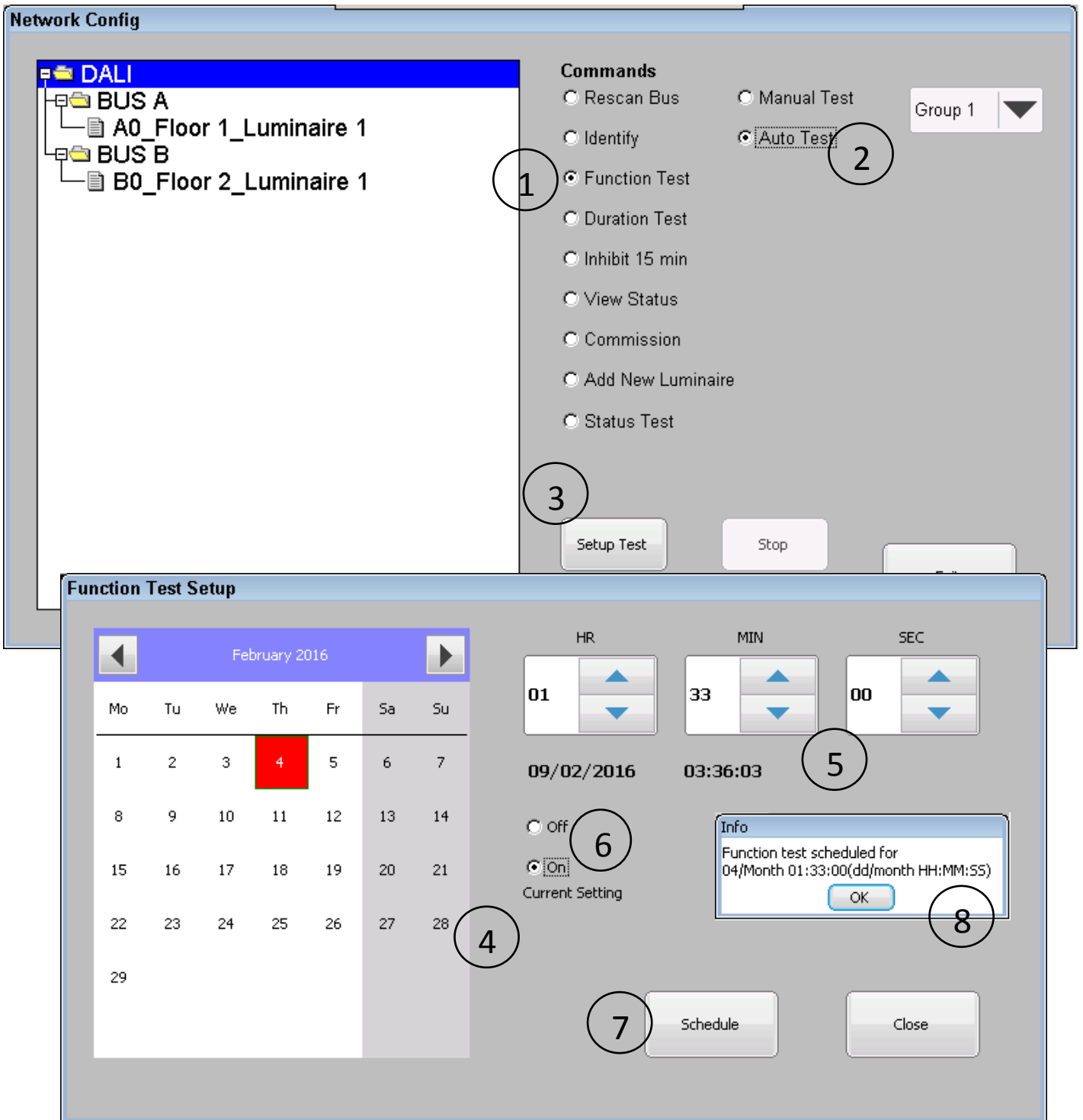


Figure 39 Function Test (Auto) Setup



### 4.1.2. Duration Test

An automatic duration test can be scheduled to occur annually at a chosen date & time on the selection of emergency luminaire(s) (Type 1) listed in treeview widget of “Network Config” window. The automatic duration test can configure the luminaires into 4 possible groups, with each group comprising an arbitrary selection of emergency luminaires and/or a whole DALI bus. Duplicate selection of luminaires among different groups is prohibited. It is responsibility of the commissioning engineer not to include physically adjacent luminaires in same group to prevent them be tested simultaneously. Note this includes any luminaires used for points of emphasis and emergency exit signs along the escape route.

Whilst performing this test if any luminaire does not complete the test or has not started the test; the panel will postpone acquiring results for all luminaire in steps of 1 hour for next 24 hours max. Any unresponsive luminaire will be marked as unreachable.

To setup/edit automatic duration test follow the steps as shown in Figure 40

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Duration Test” command from list of commands, select “Auto Test” from available command option
- This will reflect last selection of luminaire/BUS in the treeview widget with a green check mark (✓) for displayed group (Group x). Changing displayed group using provided dropdown menu will update the selection for that particular group.
- Make selection of required group and choose required individual luminaire or BUS and press “Save Sel & Continue” button on “Network Config” window to proceed.
- This will open dialog window for setting date & time of test and state of duration test. The newly opened dialog will reflect last date, time and state of automatic duration test.
- Using the scroll arrows on the calendar widget choose new date of month, and use the spin boxes(HH,MM,SS) to set the required time of day, choose new state of test(On/Off) and press “Schedule Test” to commit changes.
- Confirmation of change will be shown on pop up dialog.

\*Note: Date selection for the month of February is only allowed up to the 28<sup>th</sup> day of the month to avoid leap year conflict.

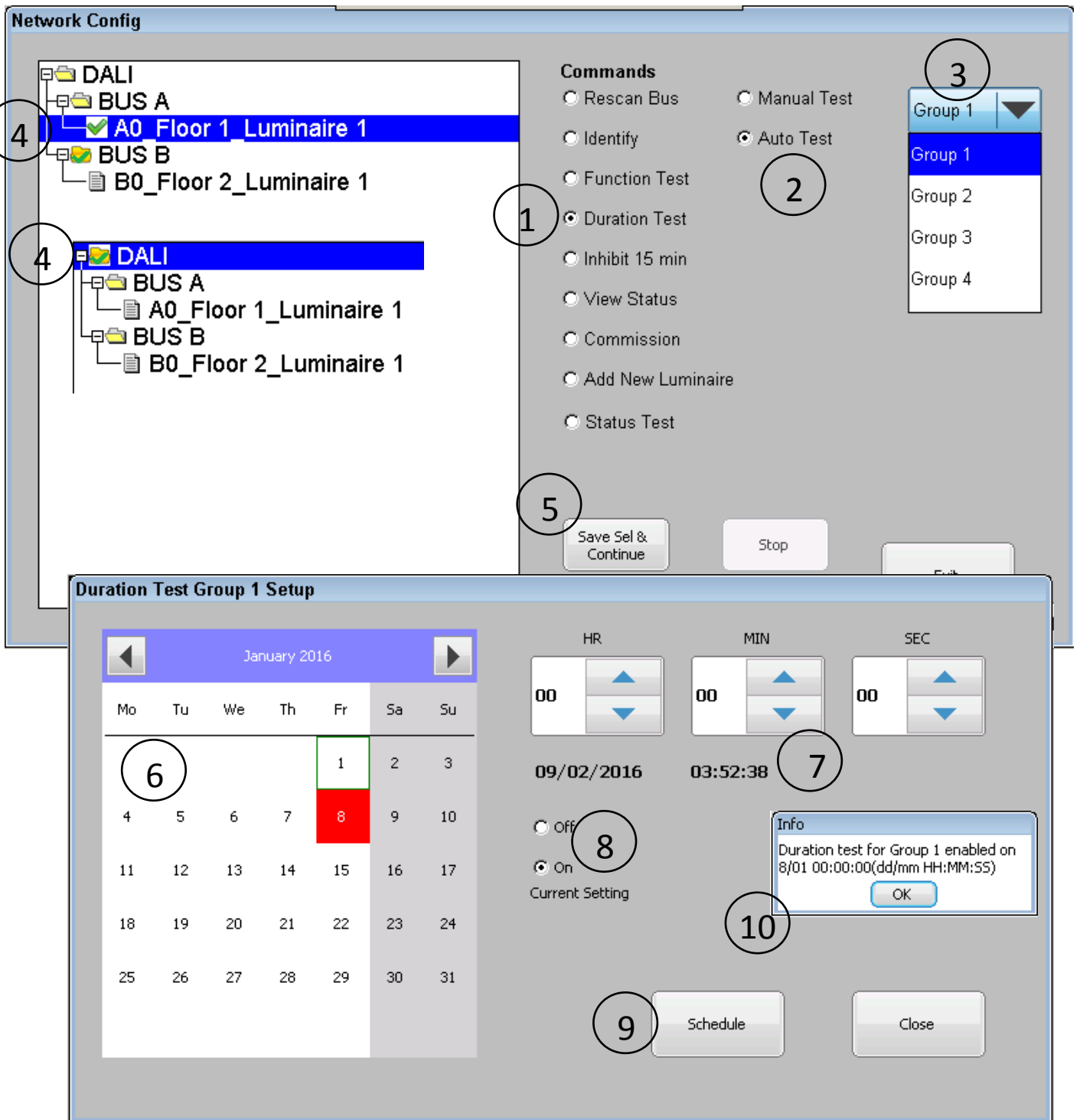


Figure 40 Duration Test (Auto) Setup

### 4.1.3. Status Test

Status test is a test that is performed daily at 12:00 to check physical BUS connection between the panel and the luminaires as well as checking for any battery failures. Results of this test are stored in battery backed RAM and retained through power down state of panel. Any failures found during the “Status Test” will cause the network status icon to be displayed on home screen as shown in Figure 8

In addition this test also retrieves the luminaire’s battery charge level although its values are stored in volatile memory and its value will have no effect on network status icon. If any of luminaire are unreachable or has battery failed during test it is marked as failed; any such failures will be displayed in the “Network Status” window within the row named “Luminaire/s” as shown in Figure 9

## 4.2. Manual Test

The panel features manual test functionality for function, duration test and status test so that the required test can be performed in order to assess luminaire and clear errors of previous test failures. Manual function and duration tests can be performed on arbitrary selection of luminaire or BUS, while status test is performed on all commissioned luminaires.

Manual tests are only allowed if:

- No other automatic or manual tests are in progress.
- For function or duration test after finishing a previous test the required delay to charge battery has been completed. For a function test the battery charge delay = 3.5 min and for a duration test the battery charge delay = 24 Hrs

### 4.2.1. Function Test

A manual function test can be performed on any of emergency luminaire (Type 1) listed in the treeview widget of the “Network Config” window. Whilst performing this test if any luminaire does not complete the test or has not started the test; the panel will postpone acquiring results for all luminaire in steps of 1 minutes for next 60 minutes max. Any unresponsive luminaire will be marked as unreachable at end of the test.

To start manual function test follow the steps as shown in Figure 41

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Function Test” command from list of commands, select “Manual Test” from available command option
- This will reflect last manual test selection in the treeview widget with a green check mark (✓).
- Make the selection of required luminaire or BUS and press “Initiate” button on “Network Config” window to start test.
- Confirmation of test start will be displayed on pop up dialog.
- Started test can be stopped at any stage before acquiring test results by pressing “Stop” button on “Network Config” window.

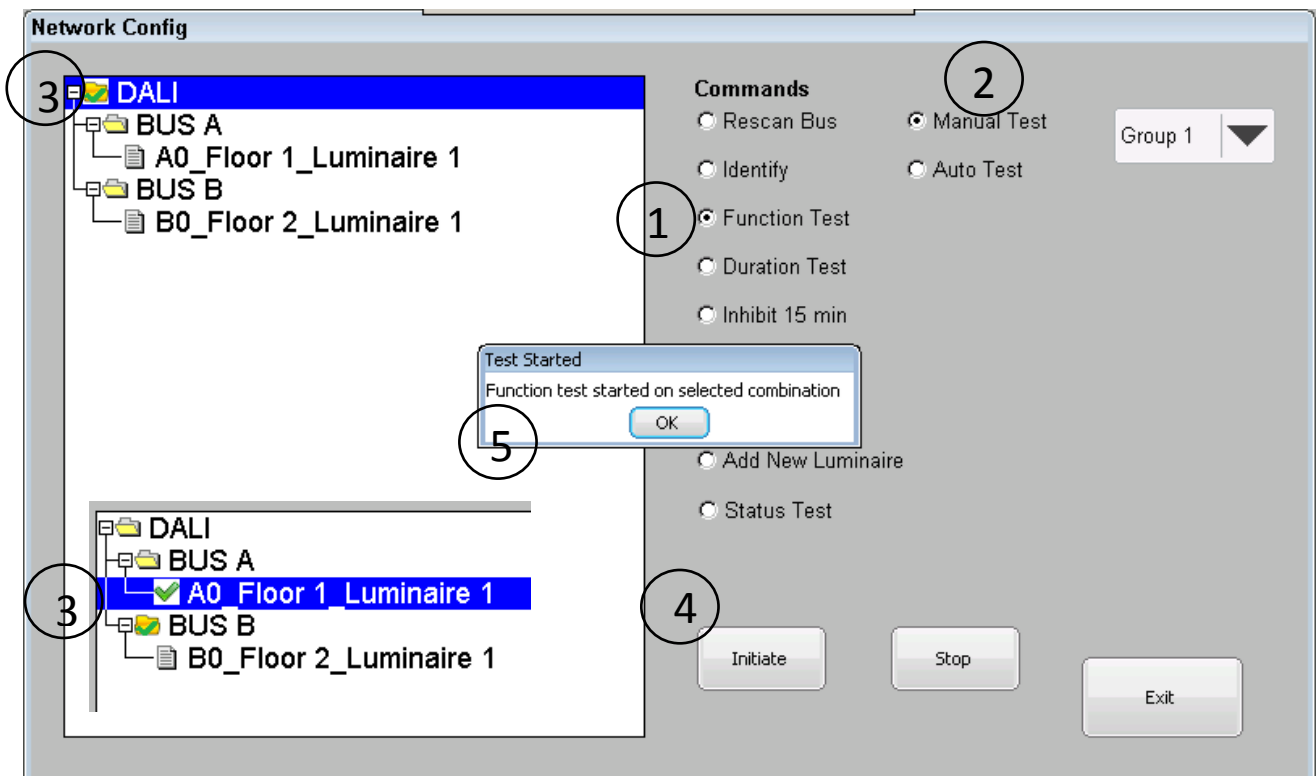


Figure 41 Manual Function Test

### 4.2.2. Duration Test

Manual duration test can be performed on any of emergency luminaire (Type 1) listed in the treeview widget of the “Network Config” window. Whilst performing this test if any luminaire does not complete the test or has not started the test; the panel will postpone acquiring results for all luminaire in steps of 1 hour for next 24 hours max. Any unresponsive luminaire will be marked as unreachable at end of the test.

To start manual duration test follow the steps as shown in Figure 42

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Duration Test” command from list of commands, select “Manual Test” from available command option
- This will reflect last manual test selection in the treeview widget with a green check mark (✓).
- Make the selection of required luminaire or BUS and press “Initiate” button on “Network Config” window to start test.
- Confirmation of test start will be displayed on pop up dialog.
- Started test can be stopped at any stage before acquiring test results by pressing “Stop” button on “Network Config” window.

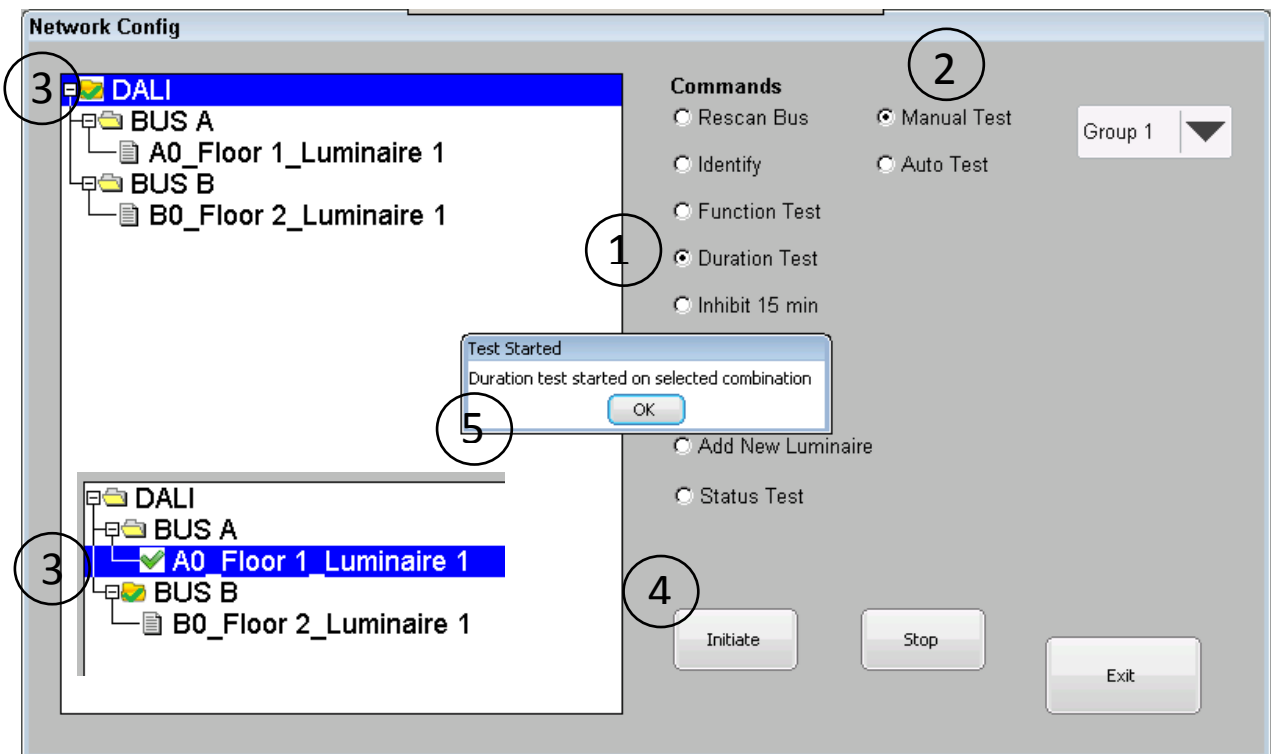


Figure 42 Manual Duration Test

### 4.2.3. Status Test

A manual status test can be performed on all emergency luminaire (Type 1) listed in the treeview widget of the “Network Config” window.

To start manual status test follow the steps as shown in Figure 43

- Go to “Home Screen” > “Engineer Mode” > “Network Config” window
- Enter 6 digit password to gain access and press “Ent”
- Select “Status Test” command from list of commands and press “Start” button

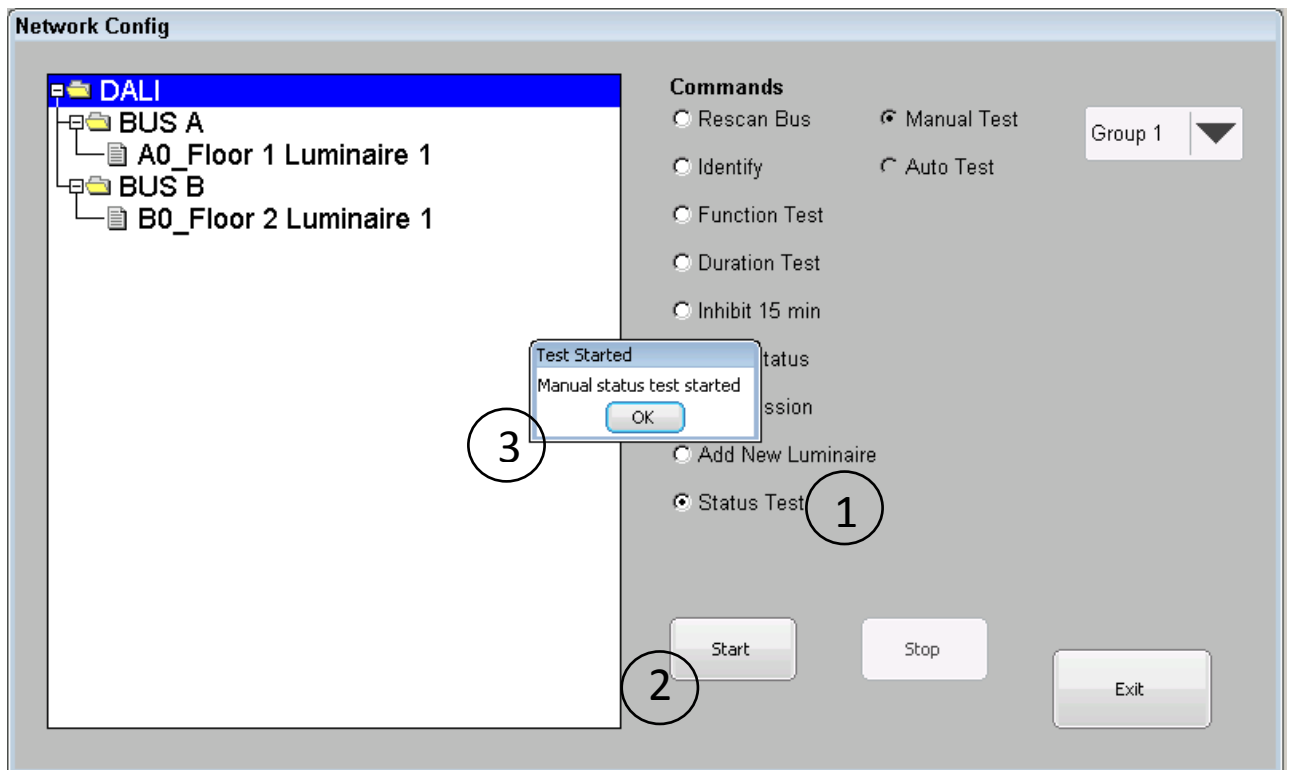


Figure 43 Manual Status Test

## 5. Test Results

### 5.1. Viewing on Screen

#### 5.1.1. Last Test Results

The last test results of a function/duration (Auto/Manual) test are available in the “Network Status” window.

To view last test’s results follow the steps as shown in Figure 44

- Go to “Home Screen” > “See status & logs”
- Choose “Last Test Log” option from available radio menu and press “View” button on “Network Status” window
- This will open a dialog window listing all the luminaires those were tested, the type(Function/Duration), the method(Autonomous/Manual) and the date & time of the test, with quick snapshot of the results
- To view further details of a luminaire select required luminaire from the provided list and press “View Details” on the dialog window
- Details of luminaire lists a snapshot of various important variables taken at the time of test

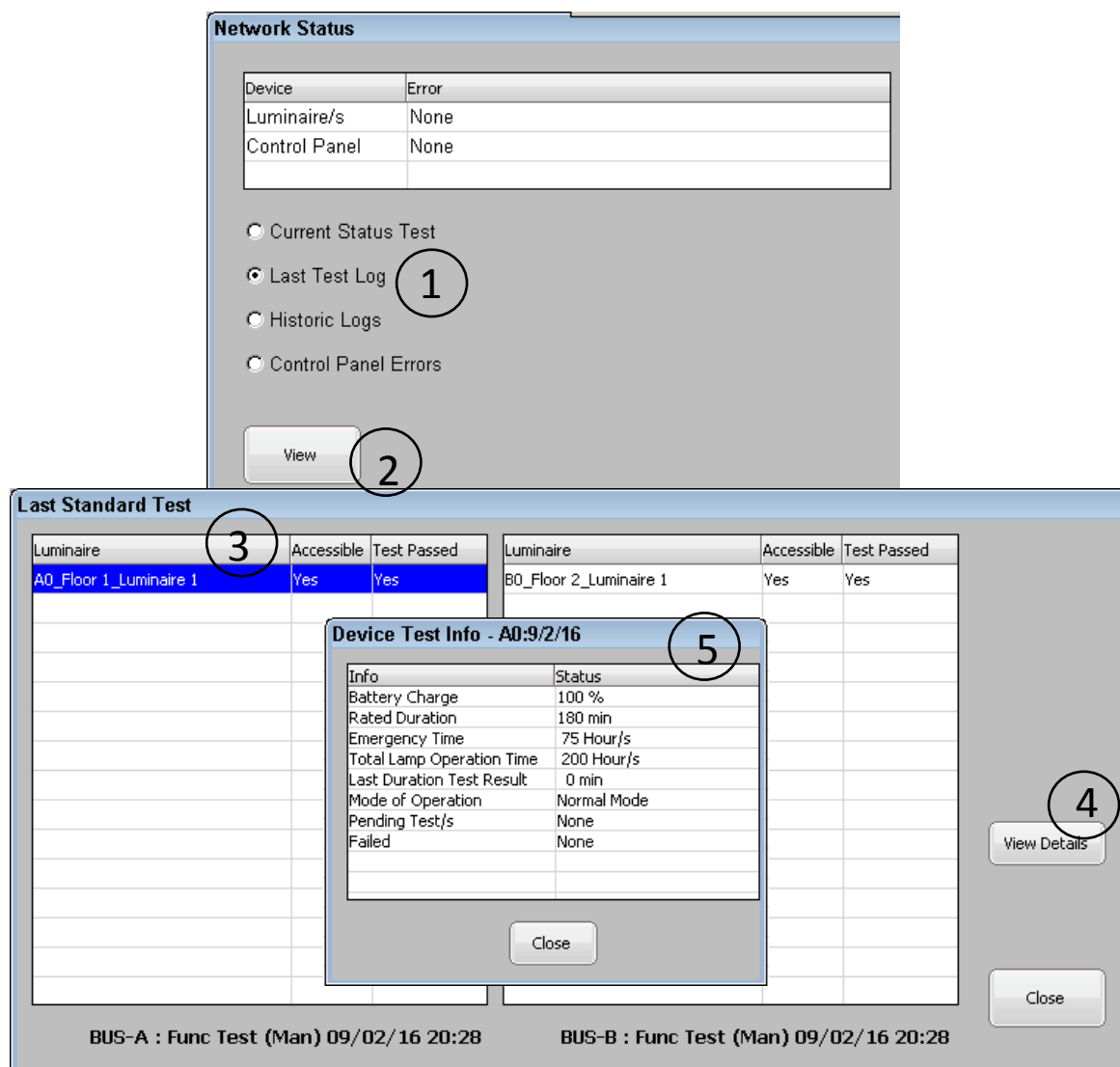


Figure 44 Last Test Results

### 5.1.2. Historic Test Results

A Panel that is loaded with the maximum number of luminaires (128 fittings) can store logs for up to 10 years assuming 12 function tests and 1 duration test per year. When the log memory is full the panel will start overriding from oldest log in a round robin fashion.

To view historic test's results follow the steps as shown in Figure 45

- Go to "Home Screen" > "See status & logs"
- Choose "Historic Logs" option from available radio menu and press "View" button on "Network Status" window
- This will open dialog window listing up to 14 individual past tests for the selected bus. To switch between BUS's use the provided dropdown menu and select required BUS (BUS A Logs / BUS B Logs).
- Use scroll buttons (Older, Newer and Latest) to scroll through historic test logs to get to required test performed at particular date & time presented in the list box.
- To view results of required test select row associated with it in the list box and press "View Details" on dialog window
- This will open dialog window listing all the luminaires those were tested giving quick snapshot of results. To view further details select the required luminaire from provided list of results and press "View Details" on this dialog window
- Details of luminaire lists snapshot of various important variables taken at the time of test



### Network Status

Device	Error
Luminaire/s	None
Control Panel	None

Current Status Test  
 Last Test Log  
 Historic Logs **1**  
 Control Panel Errors

**View** **2**

### Historic Log List

Date/Time(DD/MM/YY HH:MM)	Test Type/Method
09/02/16 20:28	Function Manual

**Older** **Newer** **Latest** **View Log** **6**

BUS A Logs **3**

**Export logs to USB flash**

Currently displayed year  
 All historic logs

**Export Log**

**5**

### Historic Test Results

Luminaire	Accessible	Test Passed
A0_Floor 1_Luminaire 1	Yes	Yes

**7**

#### Device Test Info - A0:9/2/16

Info	Status
Battery Charge	100 %
Rated Duration	180 min
Emergency Time	75 Hour/s
Total Lamp Operation Time	200 Hour/s
Last Duration Test Result	0 min
Mode of Operation	Normal Mode
Pending Test/s	None
Failed	None

**9**

**Close**

**8** **View Details**

**Close**

Figure 45 Historic Log Results

### 5.1.3. Status Test Results

Individual details of status test can be viewed as described in following section.

To view results of status test follow the steps as shown in Figure 46

- Go to “Home Screen” > “See status & logs”
- Choose “Current Status Test” option from available radio menu and press “View” button on “Network Status” window
- This will open dialog window listing all the luminaires those were tested for connectivity and also showing the battery charge level of each individual luminaire

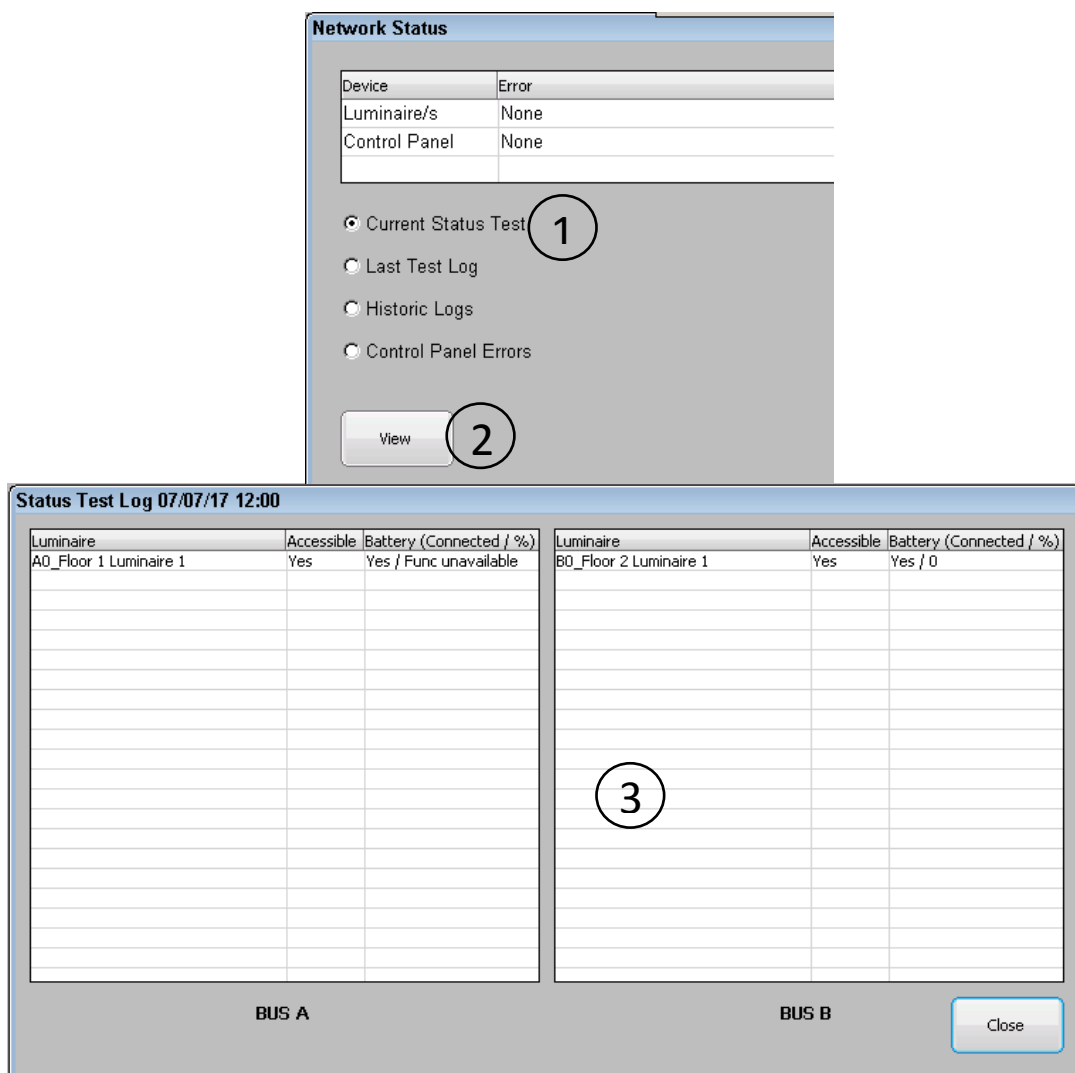


Figure 46 Status Test Results

\*Note: If battery charge values are lost due to a power down of panel, the battery charge % will be shown by “???”

## 5.2. Exporting Test Logs to USB Flash Drive

Past test's logs can be exported from the panel as excel spreadsheet to a USB flash drive. For each year of test logs, a new XML file with name format "Log1\_BUSA\_Panel 1\_DALI Log 2016.xml" will be created in the root directory of the USB flash drive. Where "Log1" is a file counter, "BUS A" represents log for selected BUS, "Panel 1" represents name given to panel and "2016" represents the year of test log. Each file can contain one or more sheets one for each unique test that had finished at unique time.

To view the required test logs follow the steps as shown in Figure 47

- Go to "Home Screen" > "See status & logs"
- Choose "Historic Logs" option from available radio menu and press "View" button on "Network Status" window
- This will open dialog window listing up to 14 individual past tests for the selected bus To switch between BUS's use the provided dropdown menu and select required BUS (BUS A Logs / BUS B Logs).
- Insert USB Flash drive in to USB socket located under front cover of panel as shown in Figure 2
- To export logs only for required year
  - Choose "Currently displayed year" using the provided radio menu
  - Use scroll buttons (Older, Newer, Latest) to scroll through historic test logs to get to required year
  - Press "Export Log" button on dialog window
- To export all historic logs for all years
  - Choose "All historic logs" using the provided radio menu
  - Press "Export Log" button on dialog window
- Confirmation of log export will be shown with a pop up dialog

**Network Status**

Device	Error
Luminaire/s	None
Control Panel	None

Current Status Test  
 Last Test Log  
 **Historic Logs** 1  
 Control Panel Errors

2

---

**Historic Log List**

Date/Time(DD/MM/YY HH:MM)	Test Type/Method
09/02/16 20:28	Function Manual

4.1

3

**Export logs to USB flash**

Currently displayed year  
 All historic logs

4

5

Figure 47 Export Logs to USB Flash

## 6. Remote Access

The panel can be accessed remotely over a network using “VNC Viewer”, which is open sourced remote viewing client software and can be download from

<https://archive.realvnc.com/download/open/>

Before connecting to the panel remotely, confirm the correct network configuration as described in section 2.5. If the panel is being accessed from outside of local network insure that the port number configured in section 2.5 is forwarded by network router to IP address assigned to the panel.

To connect to panel remotely open “Run VNC Viewer” client on the computer as shown in Figure 48

- In option menu check “Full (all available colours)”, “Rate-Limit mouse move events” and “Send keyboard events to server” options
- Type IP address in field given for “VNC Server”. If accessing one of many panels under single external IP address , followed by IP address type ‘:’ (colon) and port number of individual panel
- Set encryption field to “Prefer Off” and press “Connect” on VNC client.
- Enter 6 digit password of panel to gain access and press “OK”
- Upon successful password entry panel can be access remotely as shown in Figure 49

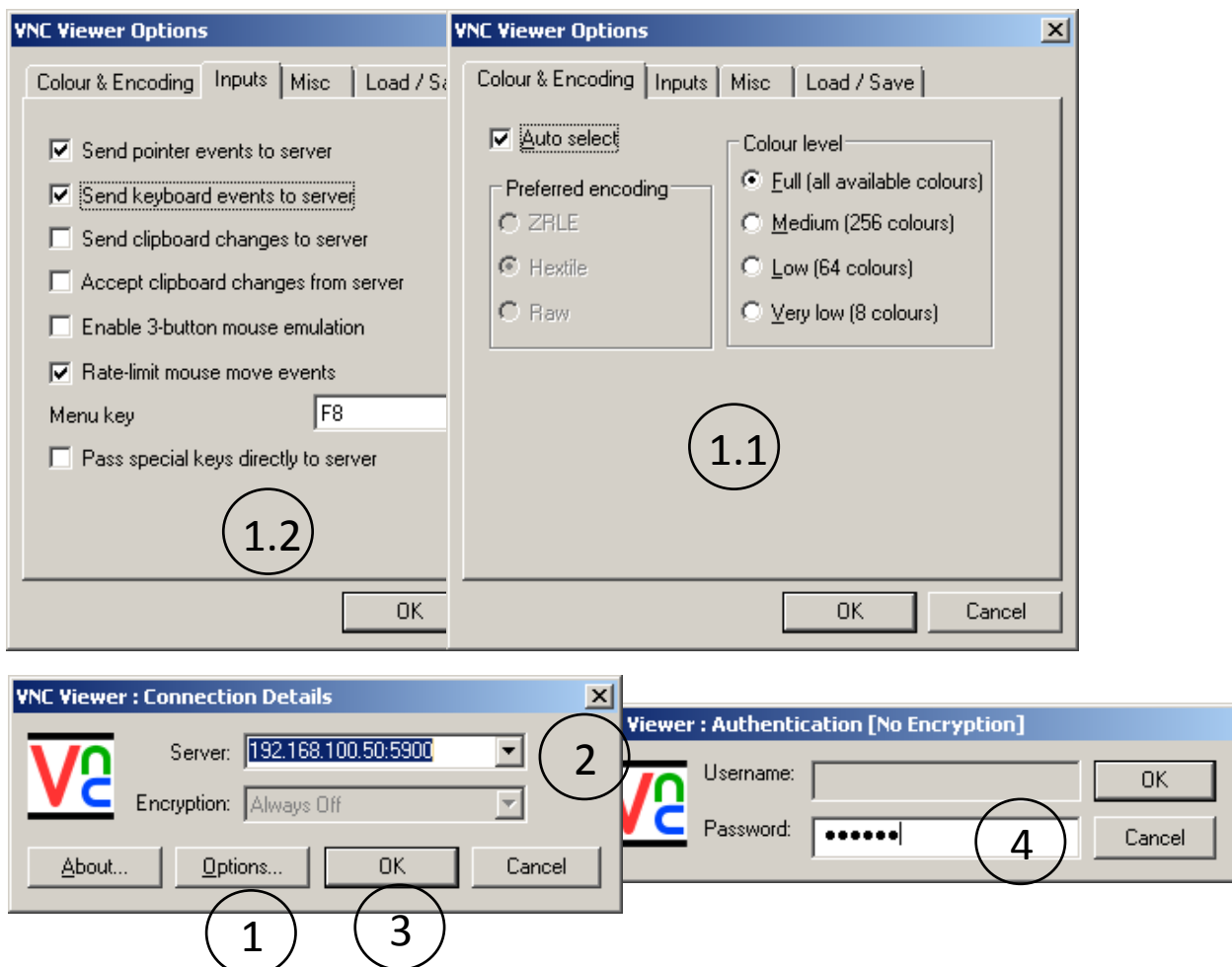


Figure 48 VNC Viewer Connection



Figure 49 Remote Access of Panel

\*Note: Whilst the remote access is in progress, the touch screen and USB operations on the panel are disabled.

\*\* VNC viewer connection is NOT encrypted.

## 7. Network status and Errors

Any errors that the panel encounters are listed in the “Network Status” window which can be accessed from “Home screen” as shown in Figure 50. The errors are listed in two categories there are errors for the luminaires and errors associated with the panel itself. If the status of DALI network and panel is ‘healthy’ then this will be shown on the home screen as a green tick icon. If there is a fault then this will be shown on the home screen as an amber triangle with exclamation mark, as shown in Figure 8. The transition from “Healthy” state to “Attention required” state will cause buzzer to be sounded if it is enabled in the “Device Settings” window.

Network Status		Network Status	
Device	Error	Device	Error
Luminaire/s	None	Luminaire/s	Function test, Duration test, Unreachable, Status test
Control Panel	None	Control Panel	RTC Clock, DT FT Missed, Flash Error, BUS Shorted

Figure 50 Network Errors

### 7.1. Luminaire Errors

Every time a function or duration test of either automatic or manual type is conducted on any combination of luminaires from the commissioned list; the panel checks the results of each luminaire individually and if a performed test failed, the panel will display one or more of following errors upon completing the test. Details of the errors are listed in Table 2

Error	Error details	Further action to clear error
Function Test	Function test from one or more performed test failed	Scroll through past test logs using “Last Test Log” and/or “Historic Logs” option from “Network Status” window as described in section 5.1 to find out which luminaire/s failed function test and perform one or more following steps <ol style="list-style-type: none"> <li>1. Initiate manual function test for failed luminaire/s from “Network Config” window as described in section 4.2.1</li> <li>2. Replace battery and reinitiate manual function test on failed luminaire.</li> <li>3. Replace faulty luminaire from “Network Config” window as described in section 3.5 + 3.5.2</li> </ol>

Duration Test	Duration test from one or more performed test failed	<p>Scroll through past test logs using “Last Test Log” and/or “Historic Logs” option from “Network Status” window as described in section 5.1 to find out which luminaire/s failed duration test and perform one or more following steps.</p> <ol style="list-style-type: none"> <li>1. Initiate manual duration test for failed luminaire/s from “Network Config” window as described in section 4.2.2</li> <li>2. Replace battery and reinitiate manual duration test on failed luminaire/s.</li> <li>3. Replace faulty luminaire/s from “Network Config” window as described in section 3.5 + 3.5.2</li> </ol>
Unreachable	One or more control gear was unreachable during acquisition of test results while performing Function or Duration test	<p>Scroll through past test logs using “Last Test Log” and/or “Historic Logs” option from “Network Status” window as described in section 5.1 to find out which luminaire/s were unreachable and perform one or more following steps.</p> <ol style="list-style-type: none"> <li>1. Do connectivity check using commands (Rescan Bus, Identify, View Status) from “Network Config” window as described in section 3.6</li> <li>2. Replace faulty luminaire/s from “Network Config” window as described in section 3.5 + 3.5.2</li> <li>3. Initiate manual function or duration test as required for unreachable luminaire/s from “Network Config” window as described in section 4.2</li> </ol>
Status Test	One or more luminaire was unreachable or battery failure occurred during daily execution of “Status Test”	<p>Scroll through past test results using “Current Status Test” option from “Network Status” window as described in section 5.1.3 to find out which luminaire/s were unreachable or has battery failure and perform one or more following steps.</p> <ol style="list-style-type: none"> <li>1. Do connectivity check using commands (Rescan Bus, Identify, View Status) from “Network Config” window as described in section 3.6</li> <li>2. If found faulty/disconnected battery replace/resit battery and perform step 4</li> <li>3. If found faulty luminaire replace it with new one as described in section 3.5 + 3.5.2 from “Network Config” window and perform step 4</li> <li>4. Initiate manual status test from “Network Config” window as described in section 4.2.3</li> </ol>

Table 2 Luminaire Errors



## 7.2. Panel Errors

Panel errors can occur due to external event like a power failure, backup battery low or DALI bus shorting. These may cause the panel to abort any further automatic tests permanently in the event of a critical error. Details of panel errors can be viewed using “Control Panel Errors” option from “Network Status” window as depicted in Figure 51. Further details and action required is listed in Table 3

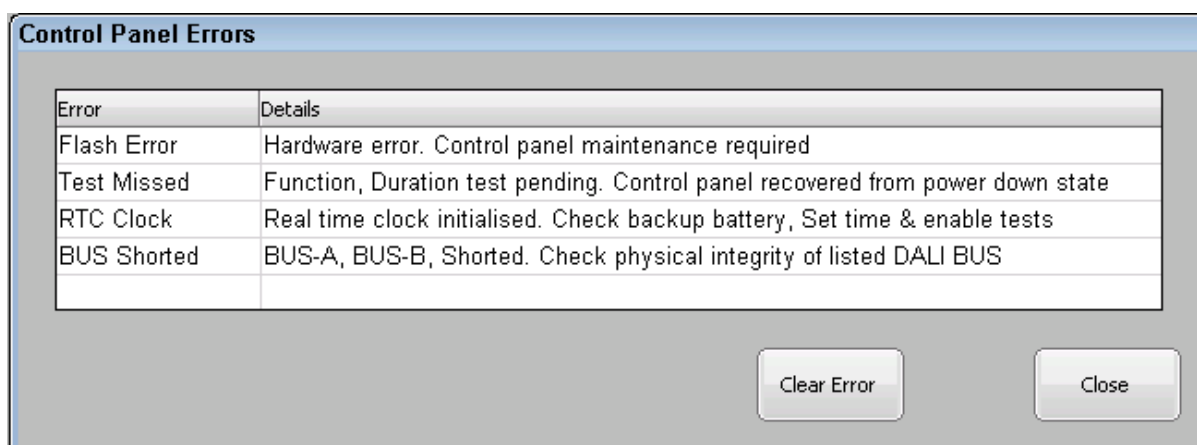


Figure 51 Control Panel Errors

Error	Error details	Further action to clear error
Flash Error	Flash storage reached end of life cycle. Upon encountering this error all scheduled test are disabled permanently.	This error cannot be cleared by customer as panel needs hardware maintenance to replace flash storage. Contact distributor/manufacturer for maintenance
RTC Clock	Backup battery low/failed. Upon encountering this error all scheduled test are disabled permanently	<ol style="list-style-type: none"> <li>1. Replace backup battery as described in section 8.1</li> <li>2. Setup date and time as described in section 2.1</li> <li>3. Clear error after selecting “RTC Clock” from “Control Panel Errors” pop up window and pressing “Clear Error” button shown in Figure 51.</li> <li>4. Re enable automatic tests as required as described in section 4.1</li> </ol>
Test Missed	One or more scheduled autonomous test missed due to power down of panel	Missed test will be performed on power up and after finishing test “Test Missed” error will be cleared automatically
BUS Shorted	One or more listed DALI BUS has a short	Check physical integrity of DALI BUS. Removing the short on the bus will clear “BUS Shorted” error automatically

Table 3 Panel Errors

## 8. Panel Maintenance

### 8.1. Changing backup battery

To run the internal real-time clock throughout mains failure panel is fitted with button cell battery CR2032. On the every power up, the panel checks the operation of the real-time clock and will flag “RTC Clock” error as described in section 7.2 to reflect a low battery error.

To replace backup battery follow the steps as depicted in Figure 52

- Turn off the panel power supply, remove recessed panel from wall socket, disconnect mains connector, DALI bus connectors , Ethernet cables and remove front frame of panel as described in section 1.5.1
- Locate physical location of backup battery on rear side of panel as shown in Figure 3 and Figure 52
- Insert flat screwdriver into notch of battery glider and slide it out by levering screwdriver as shown in Figure 52
- Insert new CR2032 battery into glider with correct polarity (+ve facing up in glider) and slide back in glider into battery socket with notch of glider facing out to align with groove of panel’s body.
- Reinsert front cover of panel, reconnect all cables and install panel into wall mount box

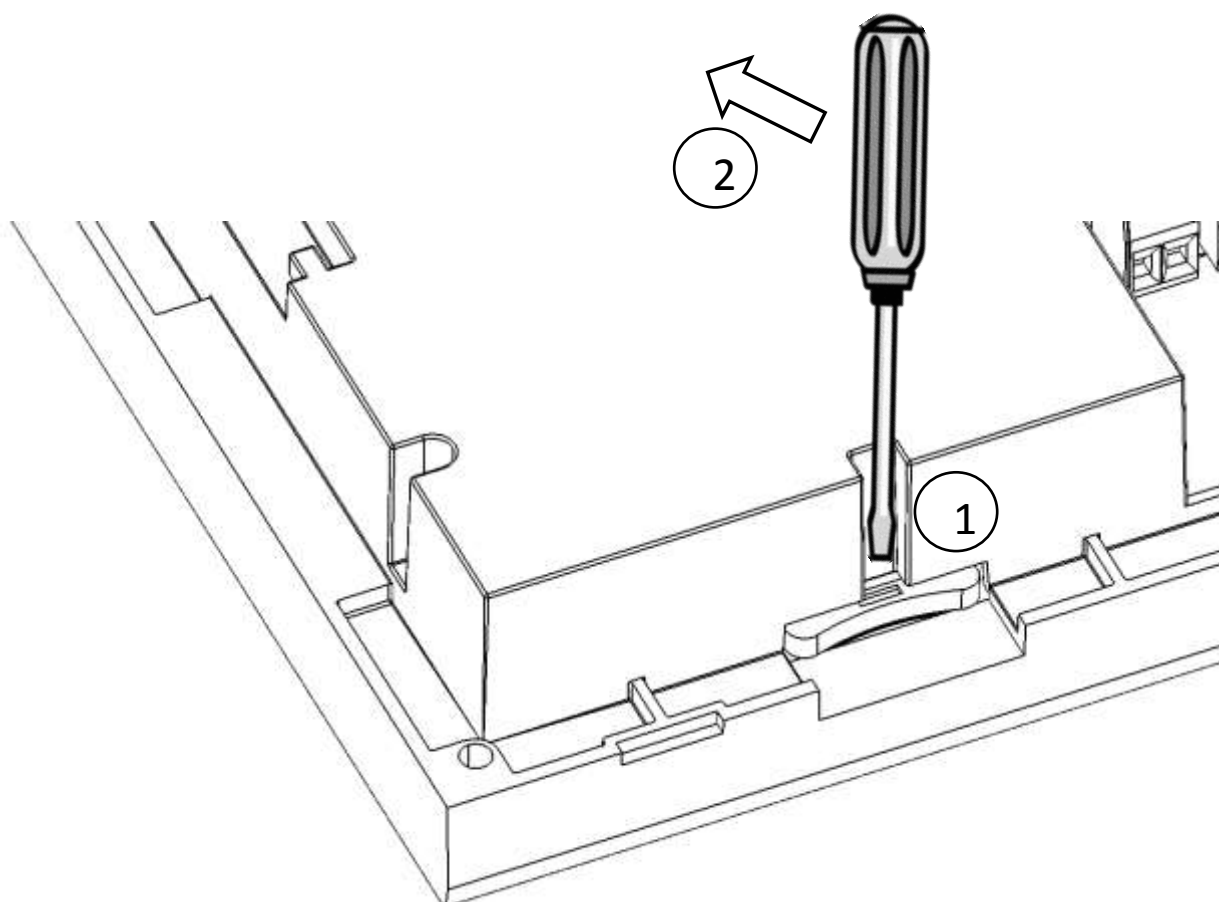


Figure 52 Change Backup Battery

## 8.2. Update Panel Firmware

To provide the ability of a field upgrade to the panel's firmware such as adding new functionality, or to fix any possible bugs. The panel features a firmware upgrade capability using a USB flash drive. Upon upgrading the firmware, no changes are made to past logs, luminaire names, autonomous test settings or to the state of the panel. It follows that after upgrading firmware, the panel is expected to continue performing its normal operations as before unless explicitly declared in the firmware release.

To upgrade panel's firmware perform the following steps

- Place new firmware file "image.bin" into the root directory of USB flash
- Remove front cover of the panel as described in section 1.5.1 and insert prepared USB flash in to the provided USB socket as shown in Figure 2
- To start firmware upgrade utility press and hold touch screen of panel and simultaneously press/release hardware reset button located near USB socket
- This will boot the panel into bootloader mode as shown in Figure 53
- On the bootloader screen press "Start" to initiate firmware upgrade process, upon finishing upgrade successful completion of message will be displayed and panel will boot into normal mode

\*Note: It is recommended not to interrupt upgrade process once started, upgrade process can be aborted by pressing hardware reset button.

\*Upon encountering any error bootloader can be restarted by repeating above steps.

```
Firmware Upgrade Utility V1.0  
Please insert USB Flash with file "image.bin"  
To upgrade firmware press Start
```

START

Figure 53 Firmware Upgrade

## 9. Appendix

### 9.1. CSV File Structure for Importing Name List

For all commissioned luminaires that exists on the panel, the respective short addresses must be listed (including for non-emergency luminaire) in 1<sup>st</sup> column with ascending order and format of An/Bn. Where A/B letter represents prefix for the bus and n represents luminaire number between 0-63. E.g. A0, B0, A10, B63 etc.

Assigned name length of luminaire must be <= 25 characters and permitted characters are A-Z, a-z, 0-1, ' ', '\_' and '/'. File should be placed on root directory of USB flash drive with filename of "xxxx\_LuminaireNames.csv" where "xxxx" represents given panel location. Sample of required CSV table is given in following figure.

Short Address(A)	Assigned Names(A)
A0	Floor 1_Luminaire 1
A1	Floor 1_Luminaire 2
Short Address(B)	Assigned Names(B)
B0	Floor 2_Luminaire 1
B1	Floor 2_Luminaire 2

Figure 54 CSV File Structure for Importing Name List of Luminaires

## 9.2. CSV File Structure of Exported Name List and Duration Test Selection Info

Short Address(A)	Assigned Names(A)	Duration Test Group 1 Selection	Duration Test Group 2 Selection	Duration Test Group 3 Selection	Duration Test Group 4 Selection
A0	Floor 1_Luminaire 1	Yes			
A1	Floor 1_Luminaire 2		Yes		
Short Address(B)	Assigned Names(B)			Yes	
B0	Floor 2_Luminaire 1				
B1	Floor 2_Luminaire 2				Yes

Figure 55 File Structure for Exporting Name List of Luminaire and DT Selection