

SurePath BLE  
User Manual V 1.03



## User manual update log

Version No	Date	Update
1.00	13 March 2020	First Release
1.01	24 June 2020	Section 4.4 added
1.02	30 Sept 2020	Section 2.5 amended <ul style="list-style-type: none"><li>○ Custom ports for VNC server and remote monitoring server are made redundant.</li></ul>
1.03	08 Feb 2023	Applicable for firmware $\geq$ V1.15 Section 2.7 added, Figure 7 updated, section 5.1.3 updated

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# 1. Getting Started

## 1.1. Getting to Know the SurePath BLE Panel

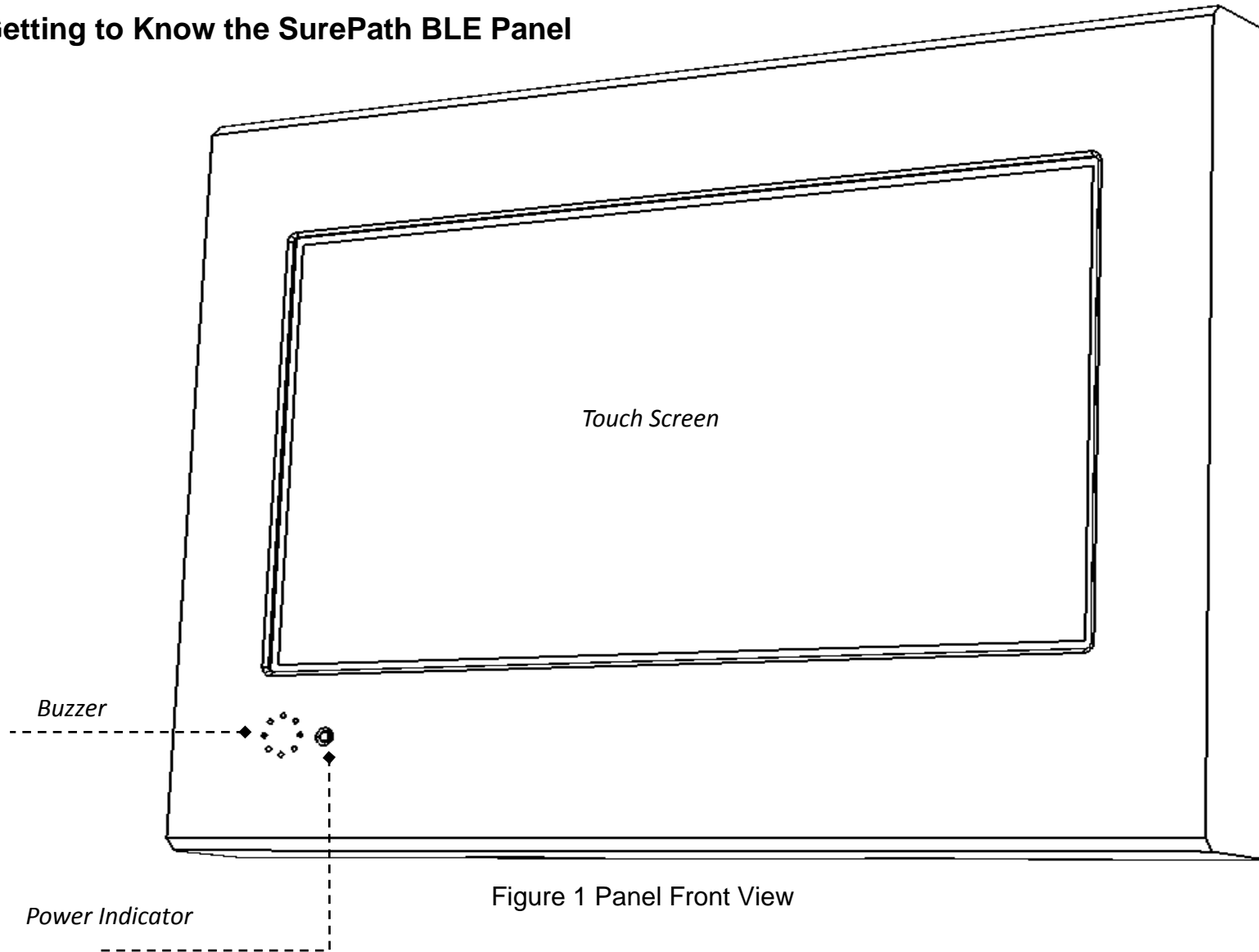
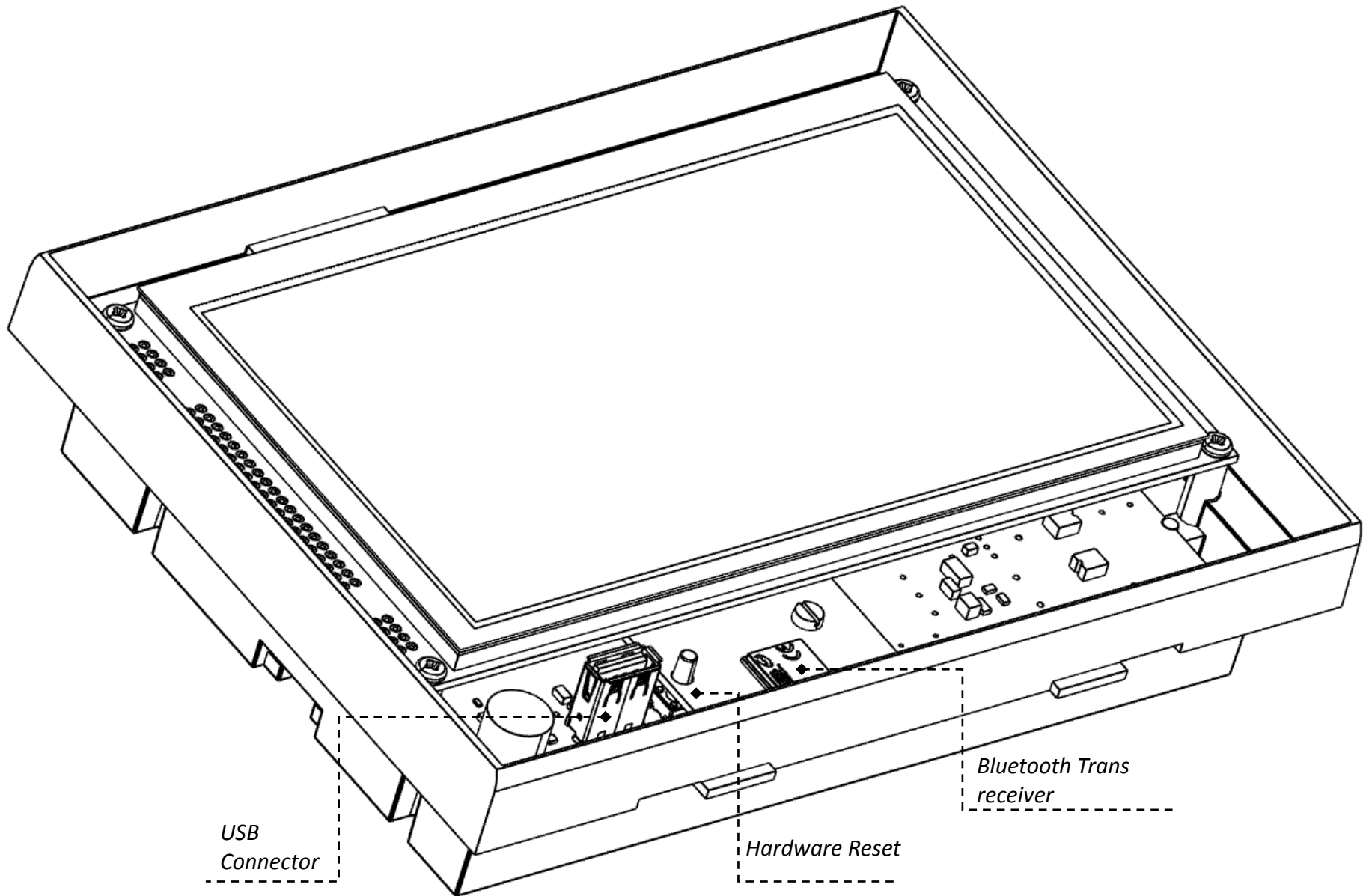


Figure 1 Panel Front View





USB  
Connector

Hardware Reset

Bluetooth Trans  
receiver

Figure 2 Panel Front View (Cover removed)

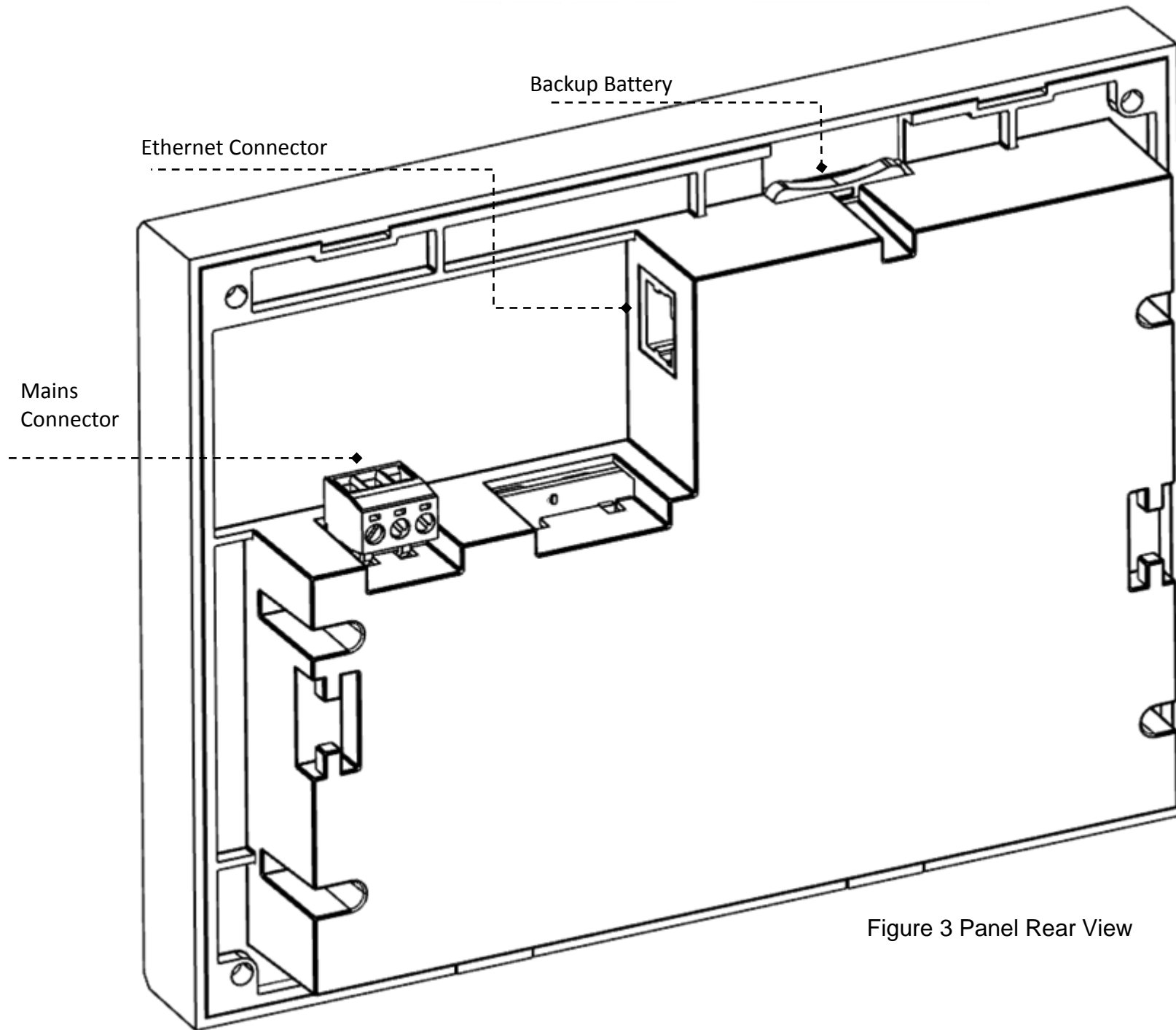


Figure 3 Panel Rear View

## 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
Supported accessory	BLE DALI Gateway & Self-contained emergency luminaire
Test log memory capacity	10 years (for max 128 attached luminaires)
Power rating	5 .1 W nominal
Weight	563 g
Dimensions (H x W x D)	150 x 195 x 45 mm
Bluetooth Trans receiver Version Range Max Tx power	5.0 50m indoor (Dependant on surroundings) 8 dBm (Default set to 4dBm)

## 1.3. Cabling Requirements

- Mains supply: Standard 3 core cable
- Ethernet: CAT5 Ethernet cable with RJ45 connector

## 1.4. Applicable Standards

BS EN 62386-103:2014	Digital addressable lighting interface – Control devices
BS EN 62386-104:2019	Digital addressable lighting interface. General requirements. Wireless and alternative wired system components
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
ETSI EN 301 489-1:2019	Common technical requirements; Harmonised Standard for Electromagnetic Compatibility
BS EN 55015:2019	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
BS EN 55032:2015	Electromagnetic compatibility of multimedia equipment. Emission Requirements
BS EN 61000-4-2:2009	Electromagnetic compatibility. Electrostatic discharge immunity test
BS EN 61000-4-3:2006 +A2:2010	Electromagnetic compatibility. Radiated, radio-frequency, electromagnetic field immunity test

BS EN 61000-4-4:2012	Electromagnetic compatibility. Electrical fast transient/burst immunity test
BS EN 61000-4-5:2014	Electromagnetic compatibility. Surge immunity test
BS EN 61000-4-6:2014	Electromagnetic compatibility. Immunity to conducted disturbances, induced by radio-frequency fields
BS EN 61000-4-11:2004 +A1:2017	Electromagnetic compatibility. Voltage dips, short interruptions and voltage variations immunity tests
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 the panel, follow the sequence depicted in Figure 4

- Use wide flat screw driver to unlatch the two hooks (preferably two screw drivers simultaneously) 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

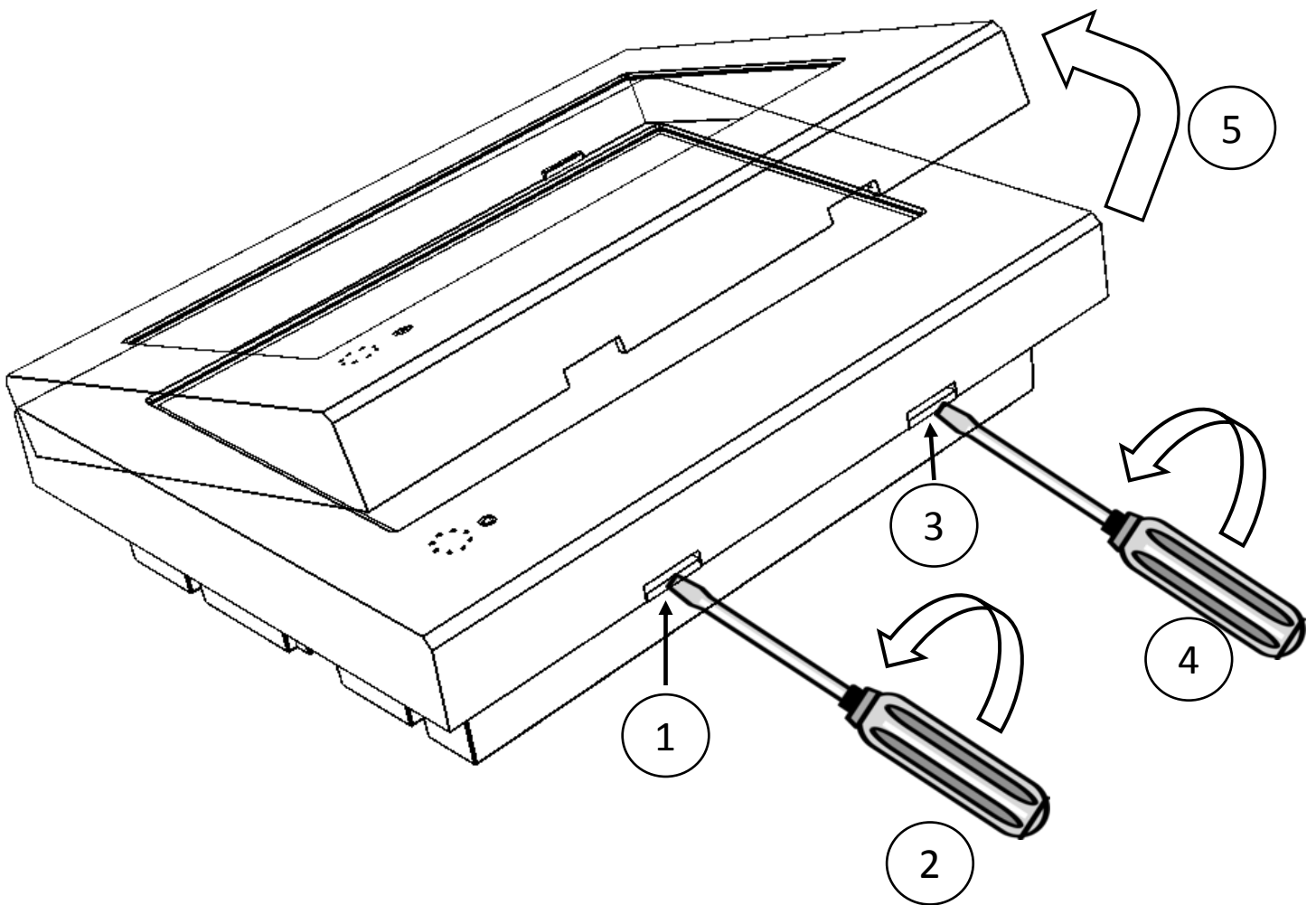


Figure 4 Remove Front Cover

Note ESD precaution must be taken during installation of the panel.

## 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 and network cable (when used) should be fed through the cut-out at the back of the mounting box.
- Connect the 3 way terminal block plug to mains wire with Earth, Neutral and Live as shown on the label affixed on back of the panel
- Prepare the networking cable by attaching a RJ45 connector as required
- Connect 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

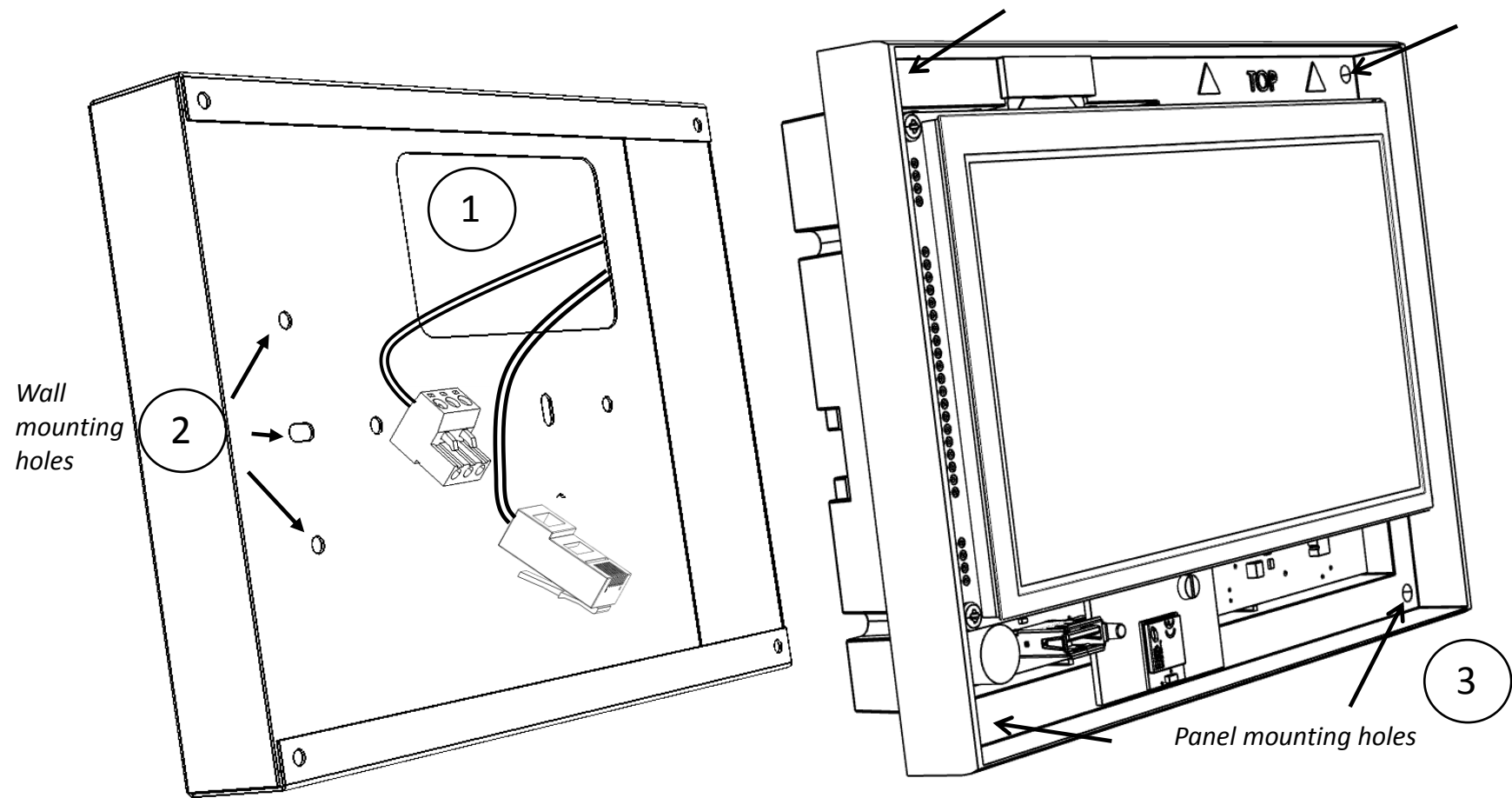
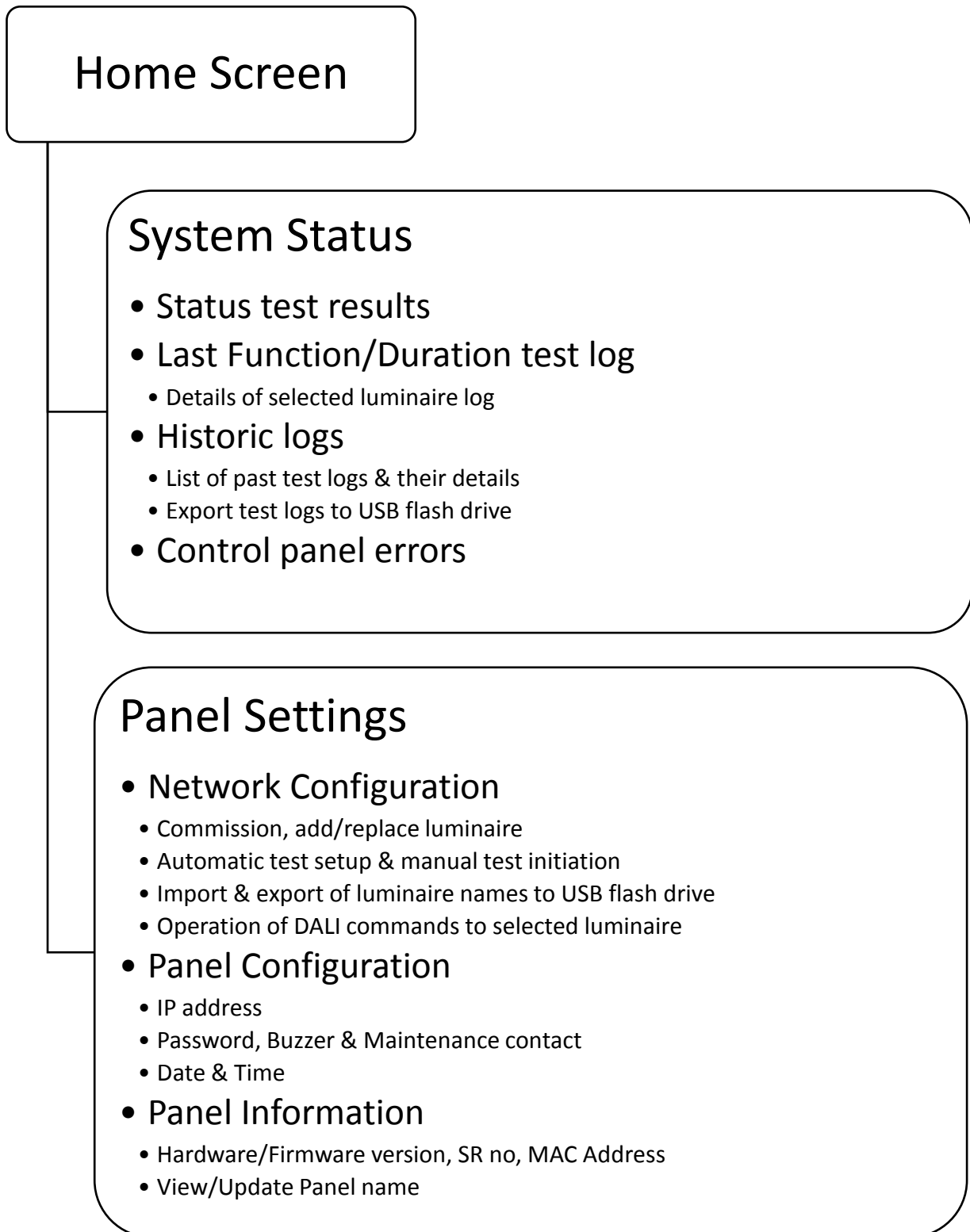


Figure 5 Panel Installation

## 1.6. Panel Menu

### 1.6.1. Menu Hierarchy





## 1.6.2. Screen Details

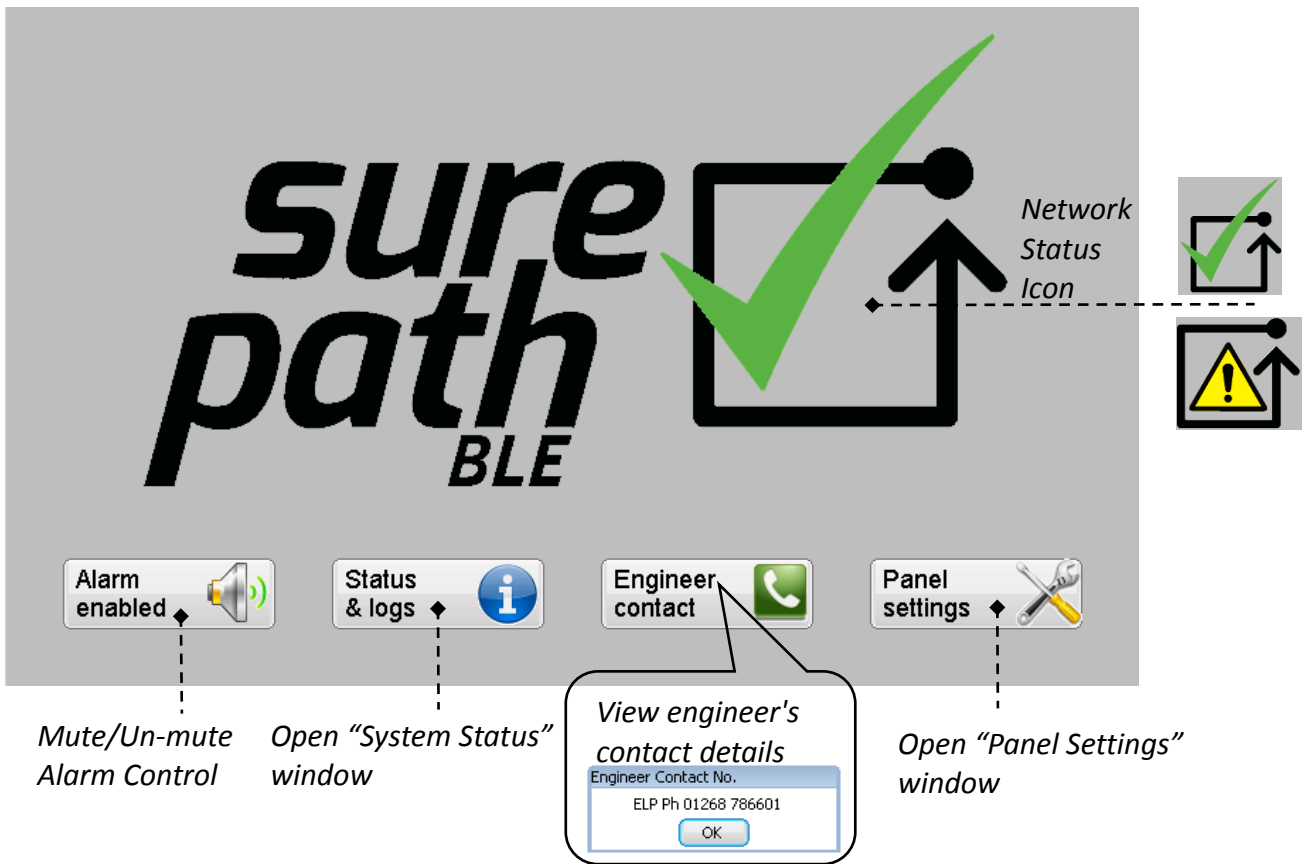


Figure 6 Home Screen

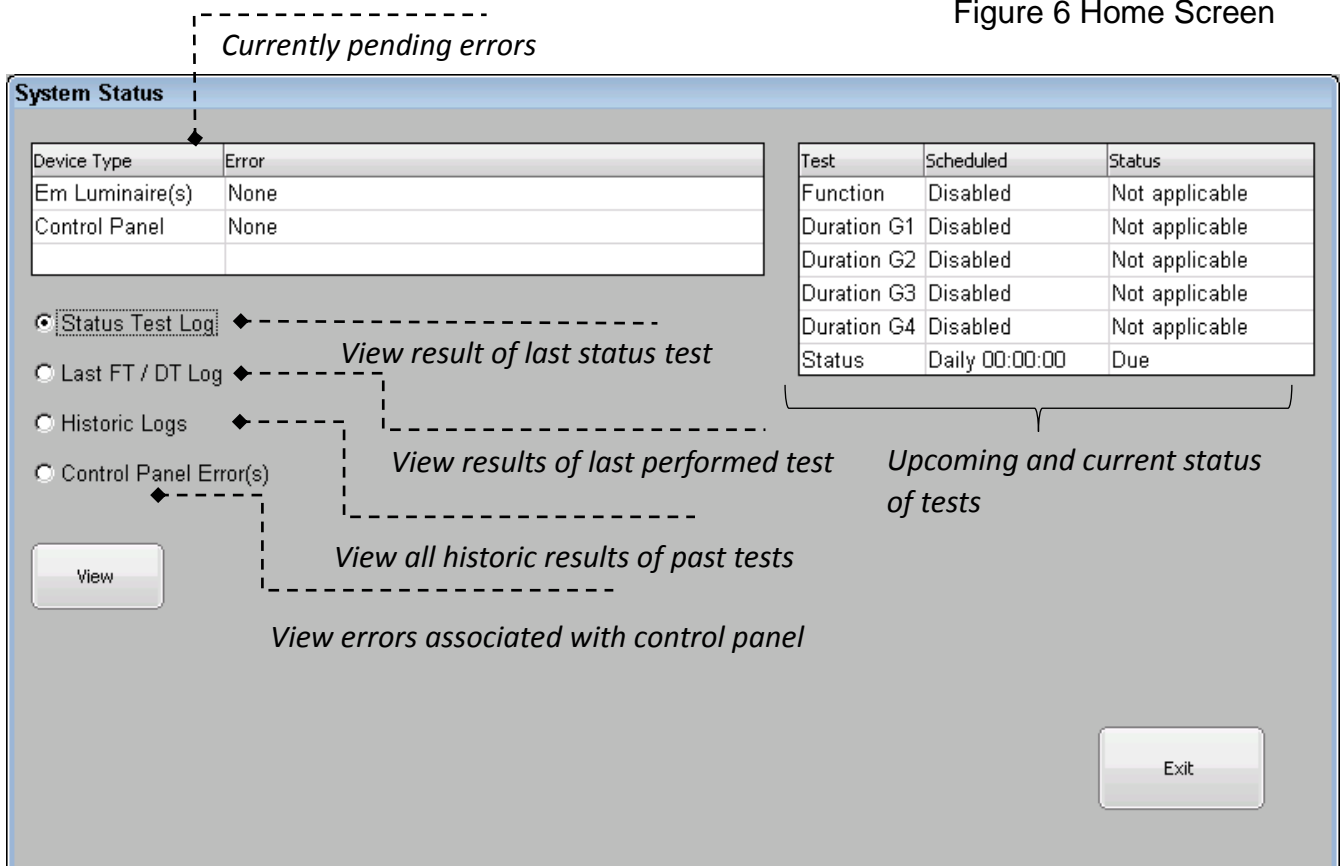


Figure 7 System Status

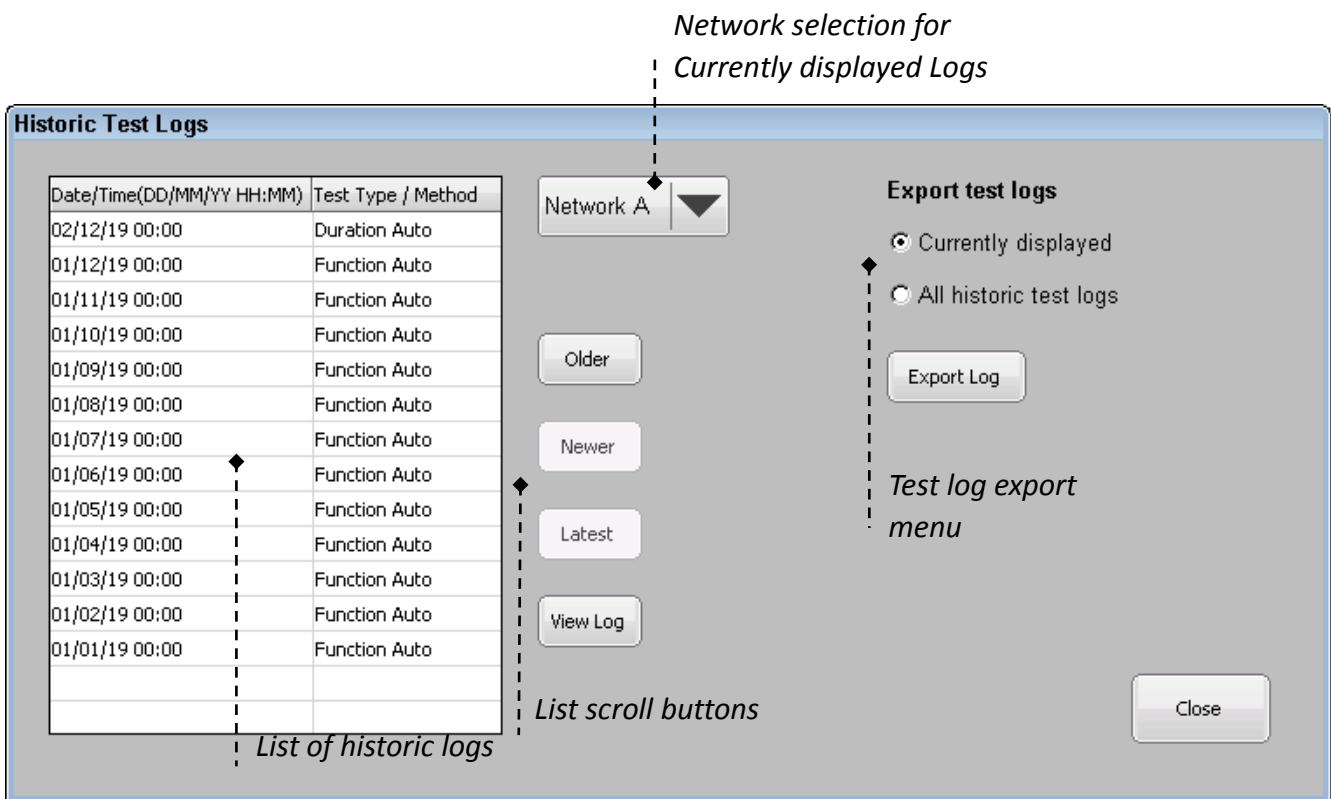


Figure 8 Historic Log List Dialog

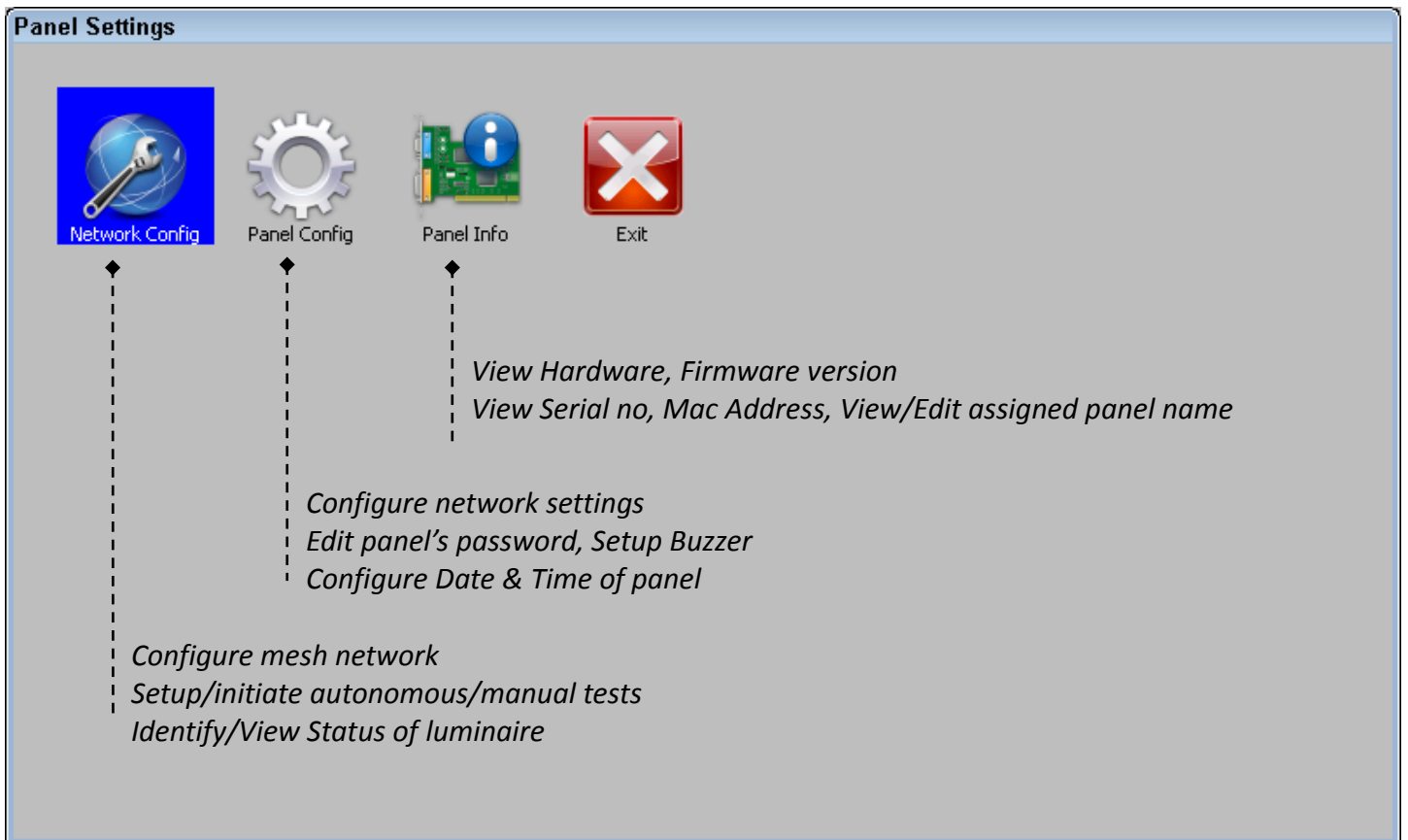


Figure 9 Panel Settings Window

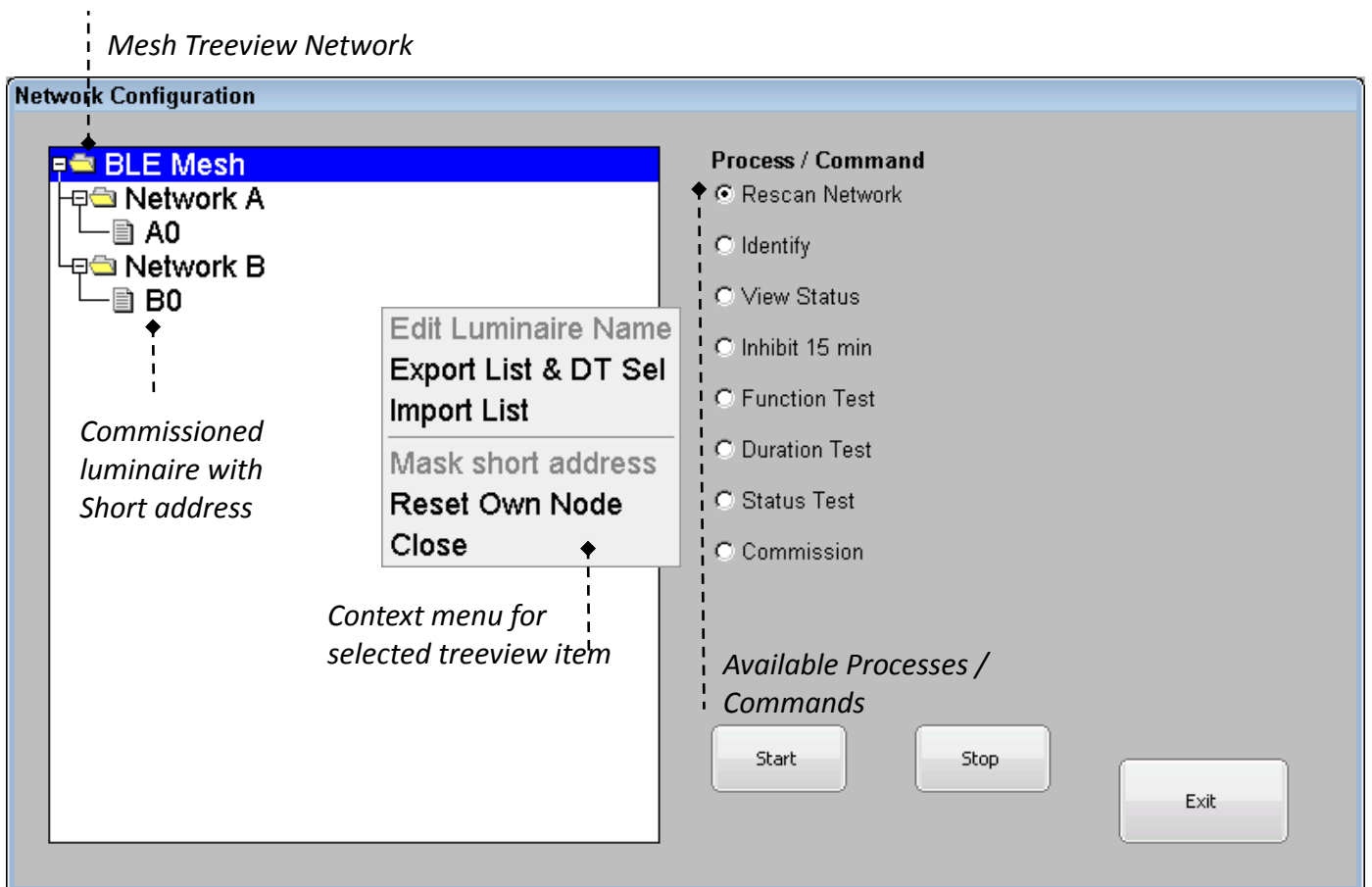


Figure 10 Network Config Window

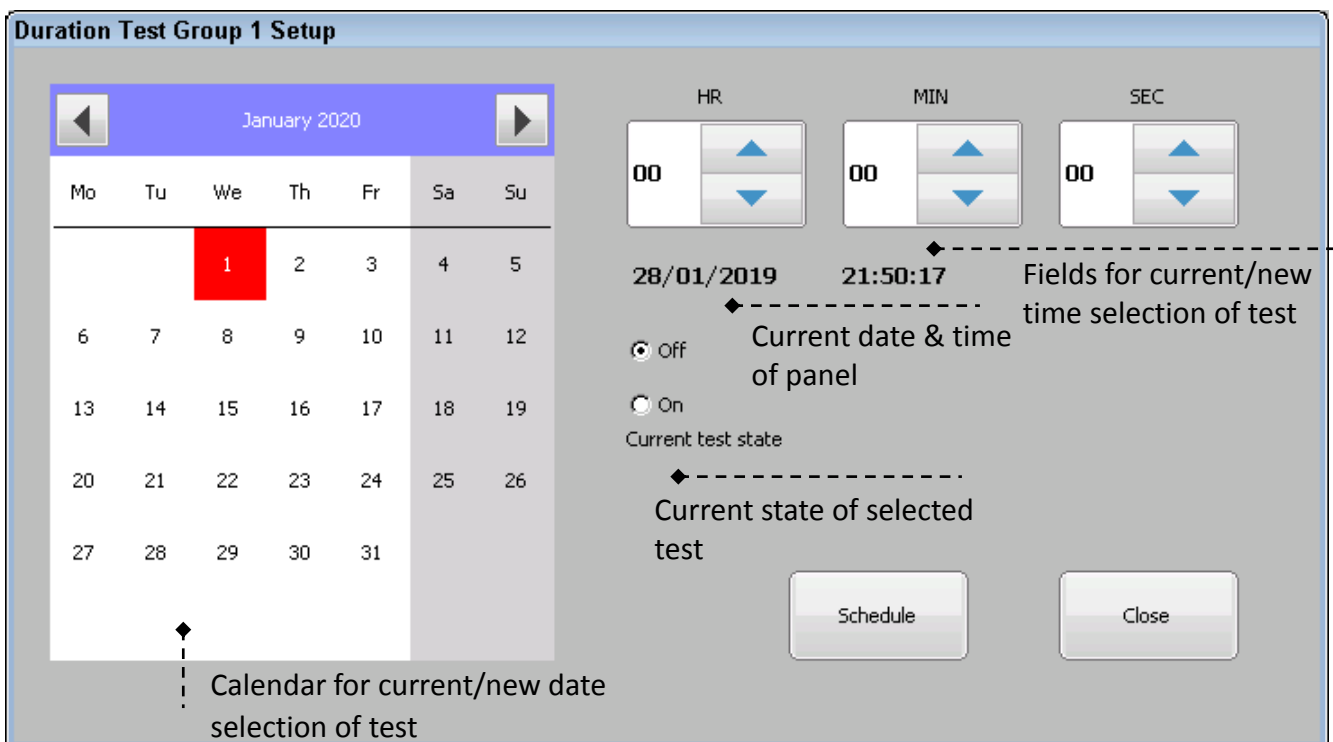


Figure 11 Test Setup Dialog

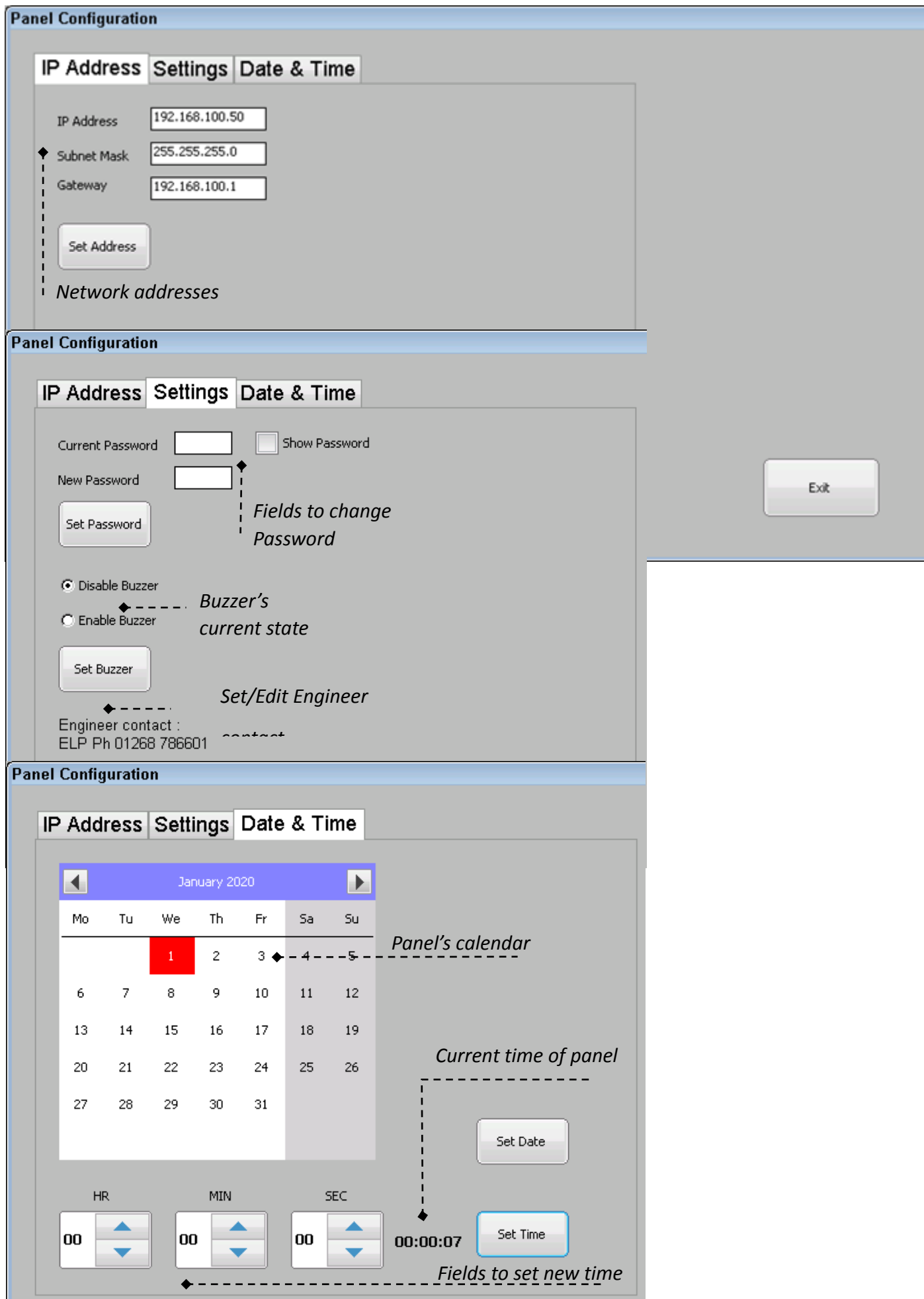


Figure 12 Panel Configuration Window

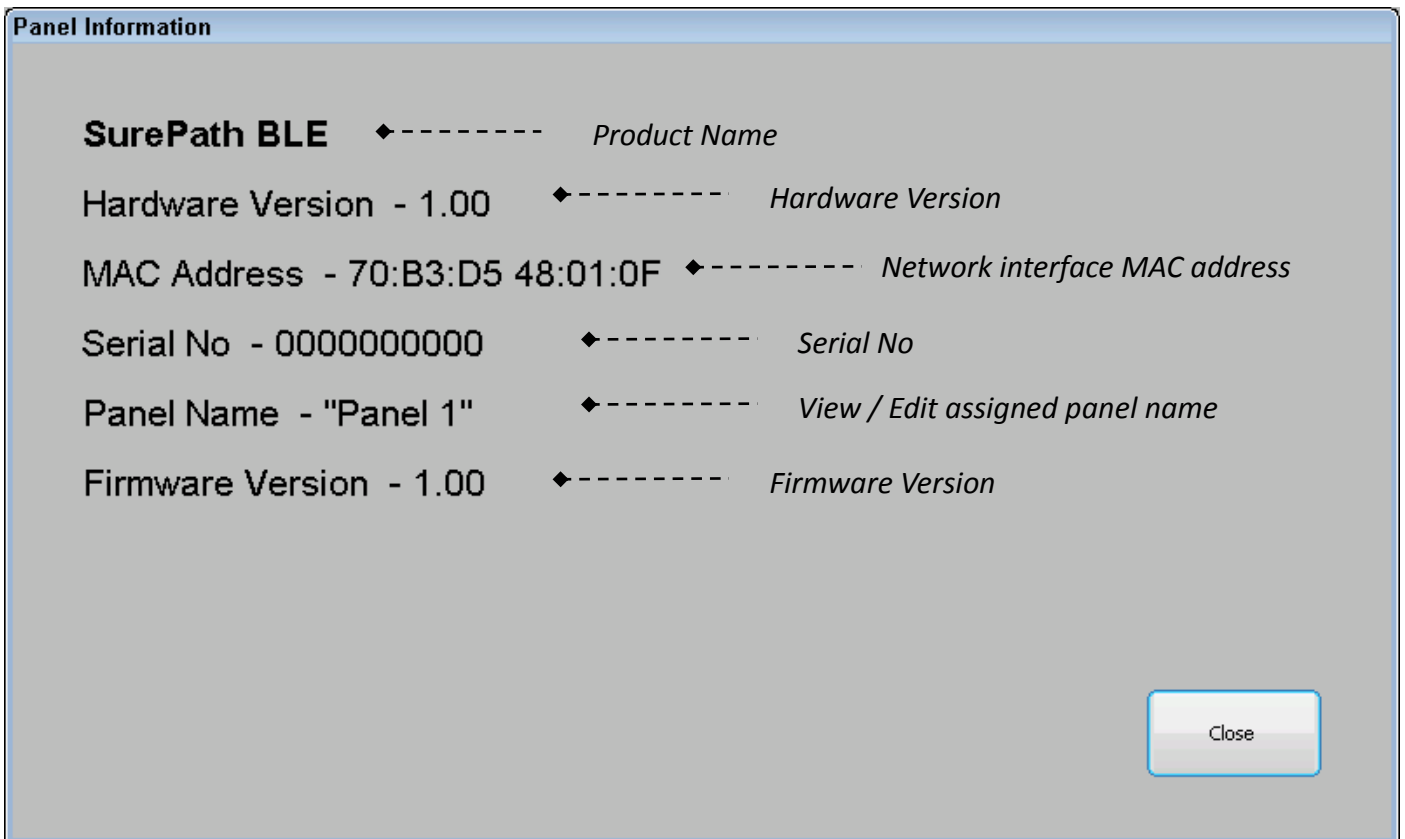


Figure 13 Panel Information Window

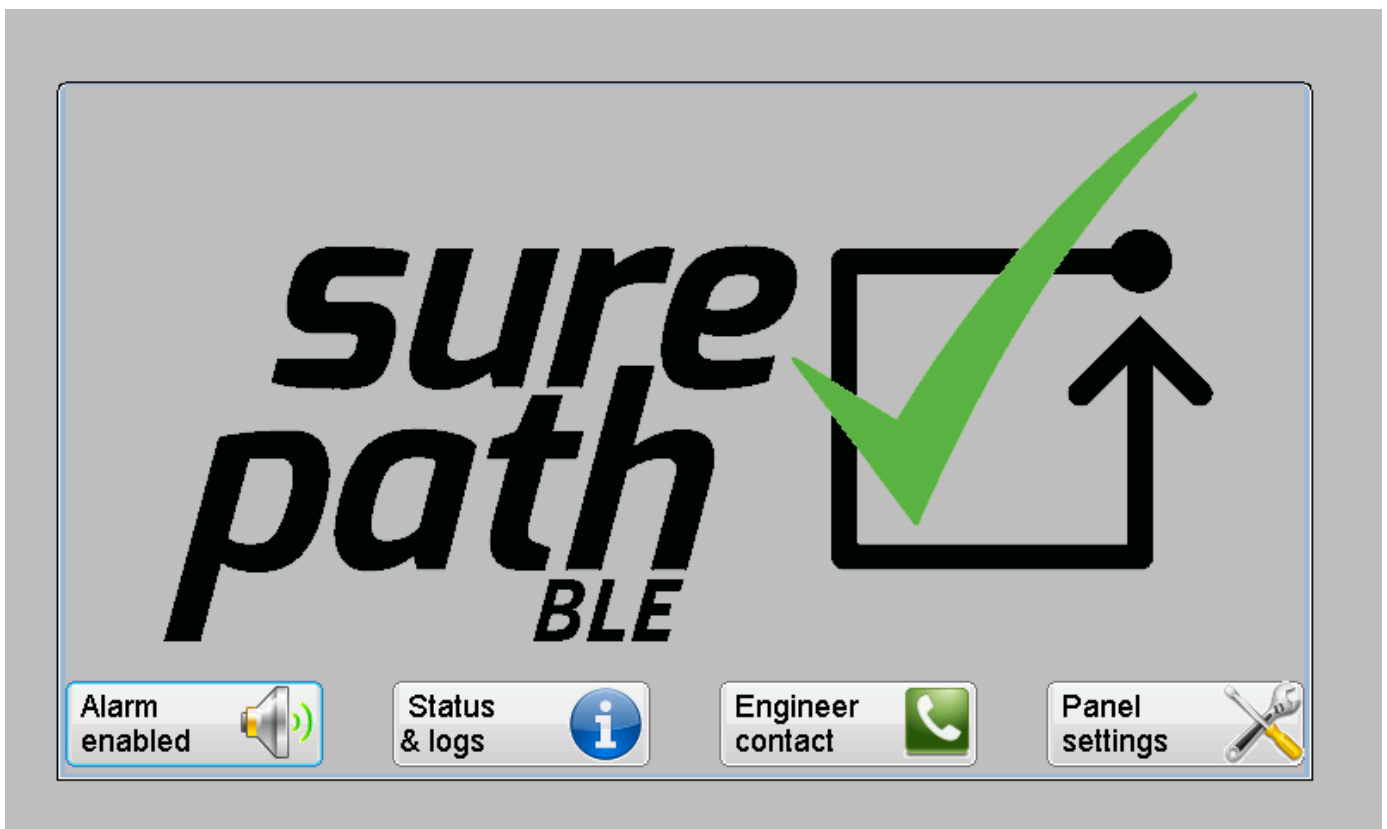


Figure 14 Screen Saver (No Fault on Network)

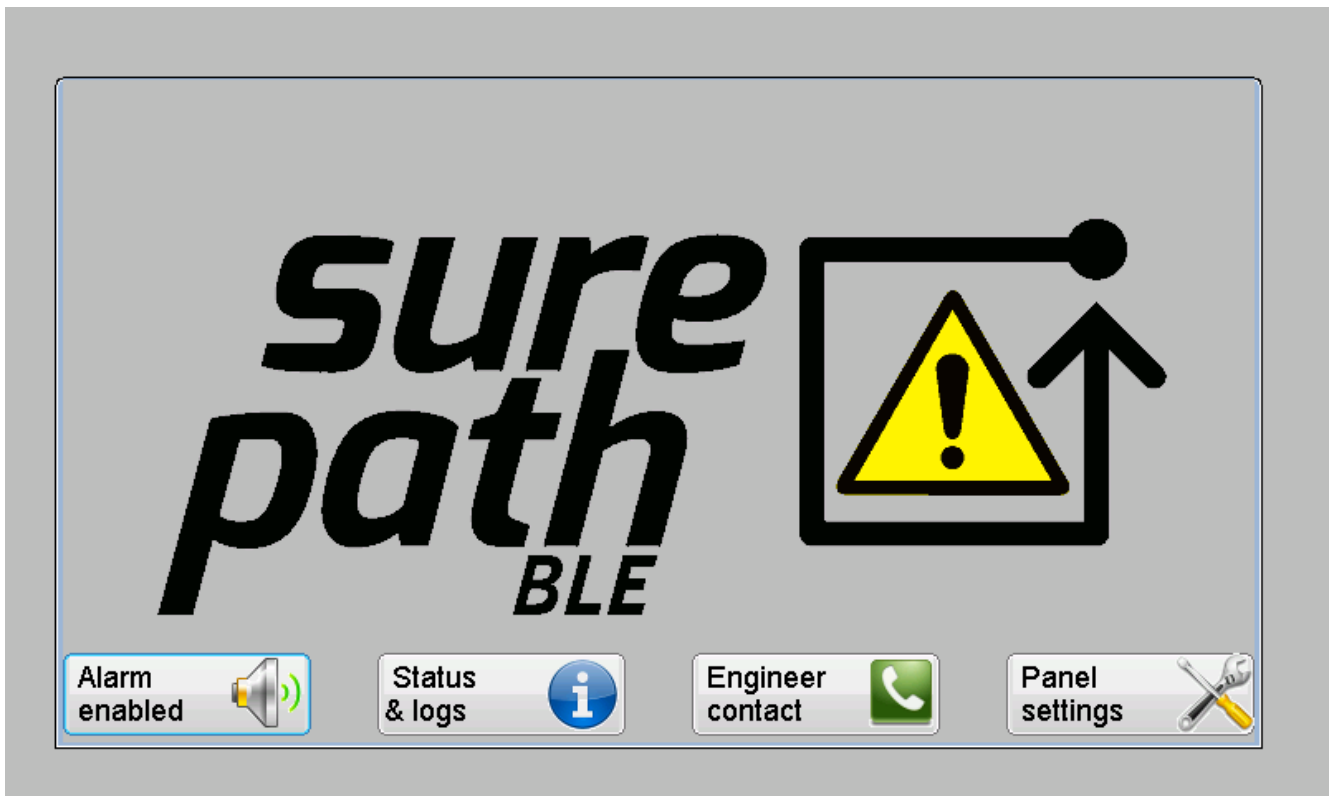


Figure 15 Screen Saver (Fault on Network)

\*Screensaver window is a floating window that appears on current screen after 5 min from last touchscreen event and reflects the current status of the system. The screen saver can be closed by clicking on “surepath BLE” icon or by clicking on “Status & logs”/ “Panel Settings” button. Password authentication will be needed to regain access; if the screen saver has appeared whilst in any of protected menus within “Panel Settings”.

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

## 2. Panel Configuration

### 2.1. Password Change & Reset

The default randomised factory password can be found on a label on the back of the panel. It is recommended to make a note of the default password, change it to a new password and then remove default password label from the panel. If the default password label is lost, then please phone the 'Engineer Contact' number displayed in Figure 6.

To change the current password of the panel follow the steps as shown in Figure 16

- Go to "Home Screen" > "Panel Settings" > "Panel Config"
- Enter 6 digit password to gain access and press "Ent"
- In the "Panel Configuration" 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. To close the Numpad click on "Ent/Close" button on the Numpad.
- Click on edit box of "New Password" field and enter 6 digits of required password in selected field.
- Upon entering both current and new password press "Set Password" button on "Panel Config" window to commit to the change. Change of password will be confirmed by pop up window.

Note: the password enables access to protected areas of the panel as well allowing access to the panel remotely. If the known password is lost then reset it back to the default password, to do this remove the RTC battery as shown in section 9.1 then power up the panel and press reset button shown in Figure 2.

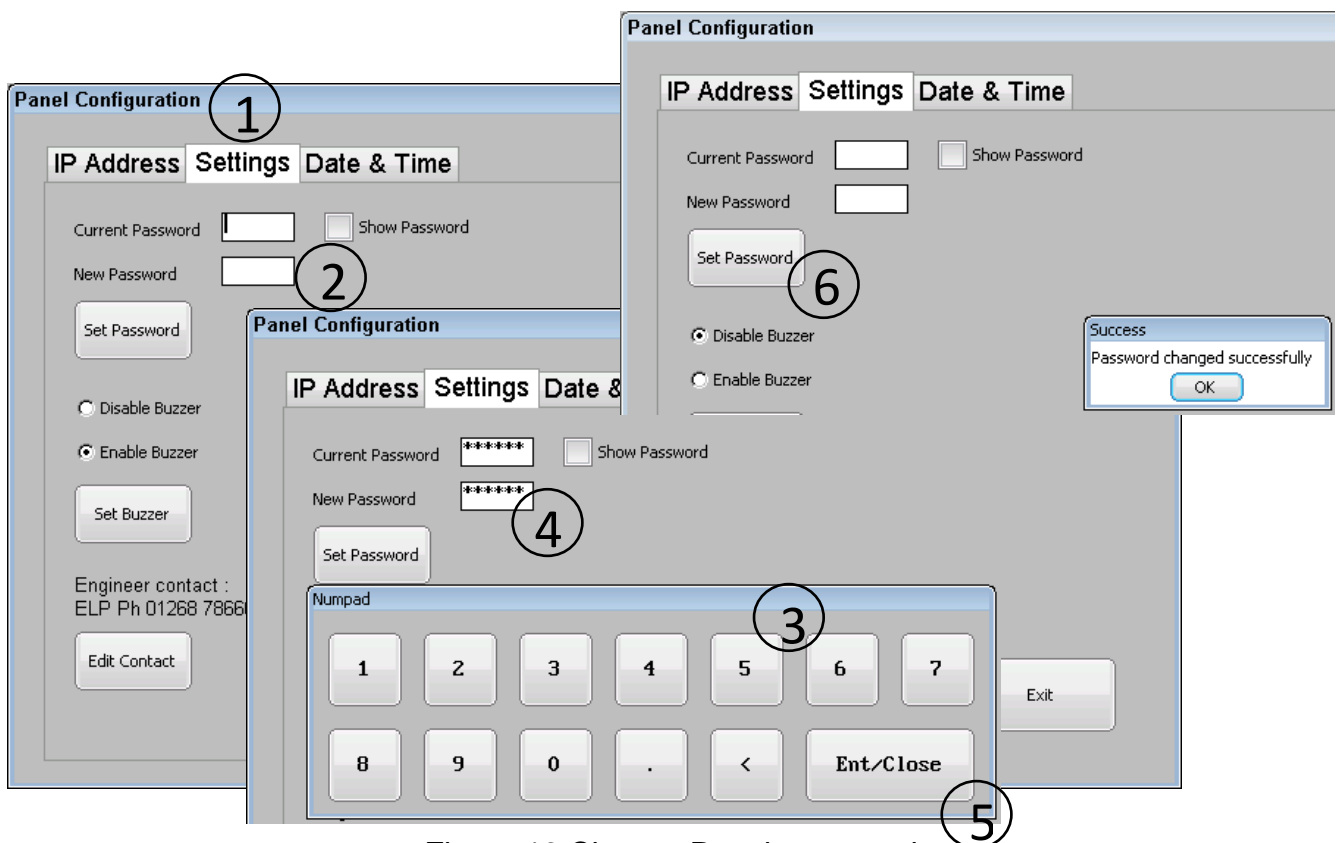


Figure 16 Change Panel password

## 2.2. Date and Time

The 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 the clock/calendar is crucial for performing automatic function and duration tests. Although displayed calendar can be scrolled from 1582 to 9999, the year selection has been restricted to the current century i.e. between 2000 and 2099.

To set date and time of the panel follow the steps as shown in Figure 17

- Go to “Home Screen” > “Panel Settings” > “Panel Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Panel Configuration” 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

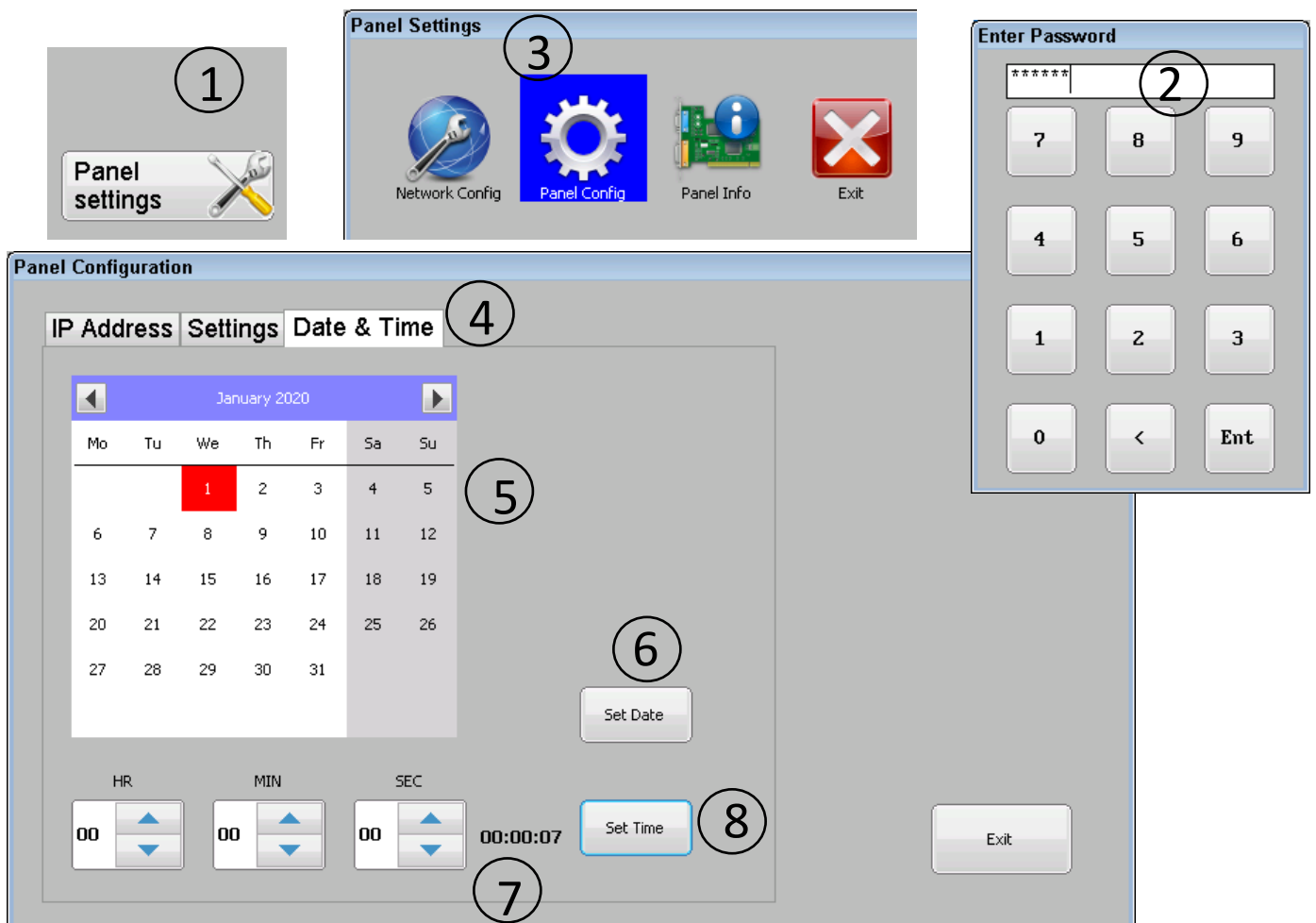


Figure 17 Date and Time Setup



## 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, will start the ON/OFF cycle of the buzzer. Buzzer then can be overridden by toggling between muted and un-muted state using the alarm control button available on bottom left corner of the “Home screen” as shown in Figure 6. Note overridden alarm by muting it will stay in same state until next event re-triggers it or else panel gets power cycled.

To change the state of the buzzer follow the steps as shown in Figure 18

- Go to “Home Screen” > “Panel Settings” > “Panel Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Panel Configuration” 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

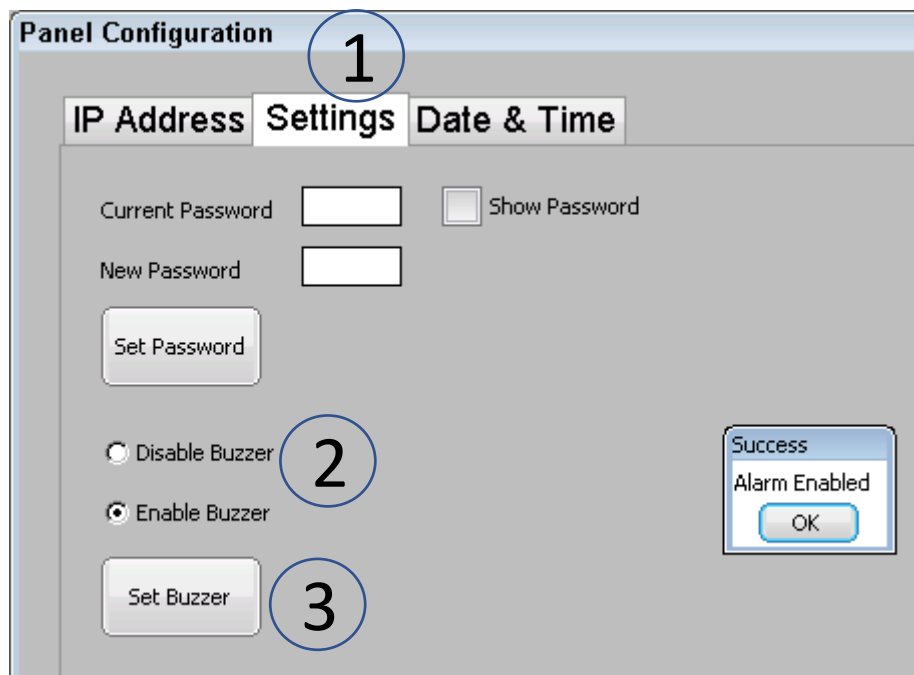


Figure 18 Buzzer Setup

## 2.4. Edit Engineer Contact Info

To edit maintenance contact information, follow the steps as shown in Figure 19

- Go to “Home Screen” > “Panel Settings” > “Panel Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Panel Configuration” 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

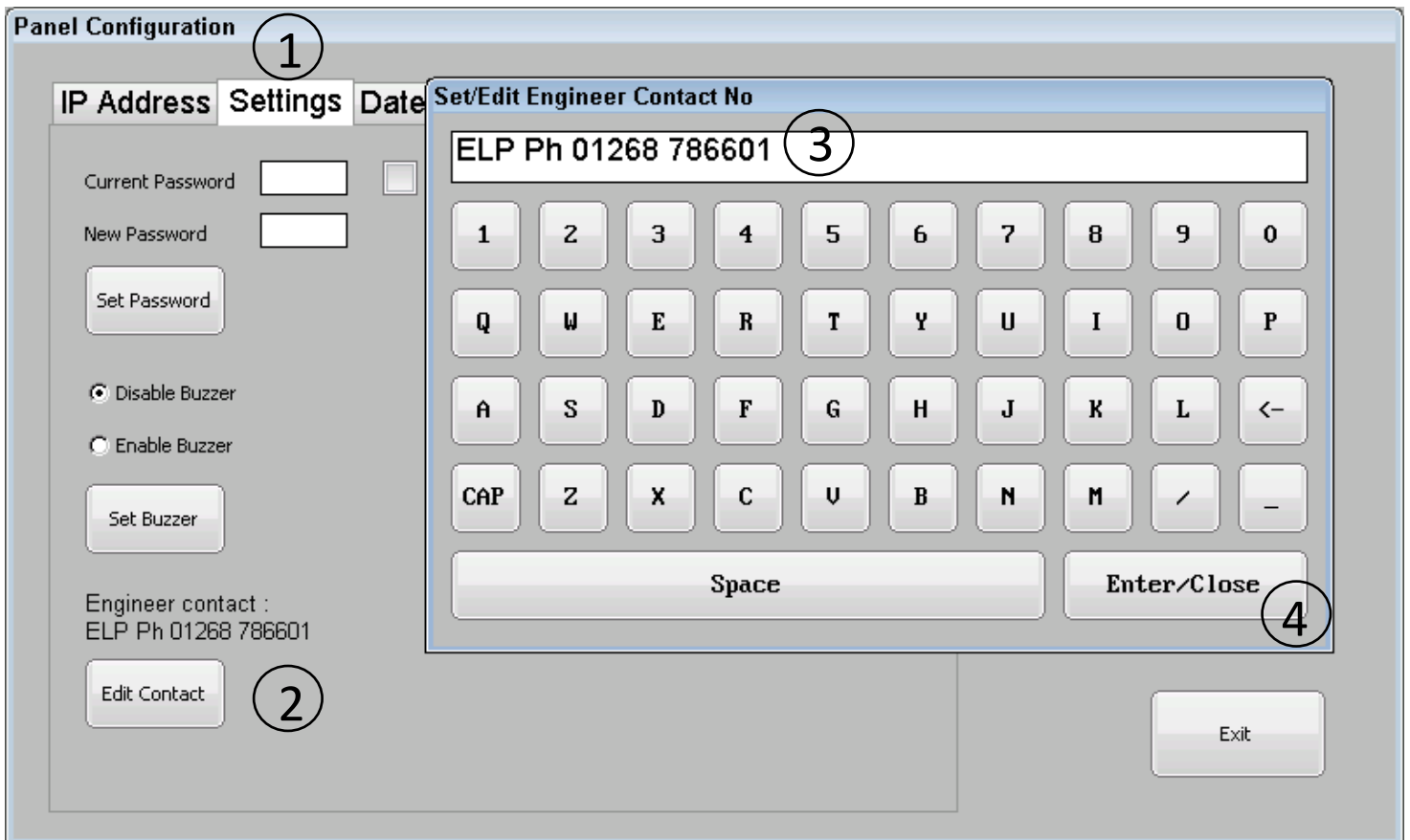


Figure 19 Edit Engineer Contact Information

## 2.5. Network Settings

The panel is capable of being remotely viewed over a remote viewing client such as “VNC Viewer”; in addition, the panel is also able to be remotely monitored and synced for test logs with computer application over LAN connection. Default VNC server on panel is running on port no 5900 while the remote monitoring server is running on port no 50,000.

To change the IP address of panel, follow the steps 1 through 5 as shown in Figure 20

- Go to “Home Screen” > “Panel Settings”> “Panel Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Panel Configuration” window select “IP Address” tab
- On the “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. To close press “Ent/Close” button on numpad.
- Now repeat above step to set “Subnet Mask” and “Gateway” address as well.
- Once finished to commit changes press “Set Address” button
- The result of the change will be confirmed by popup window

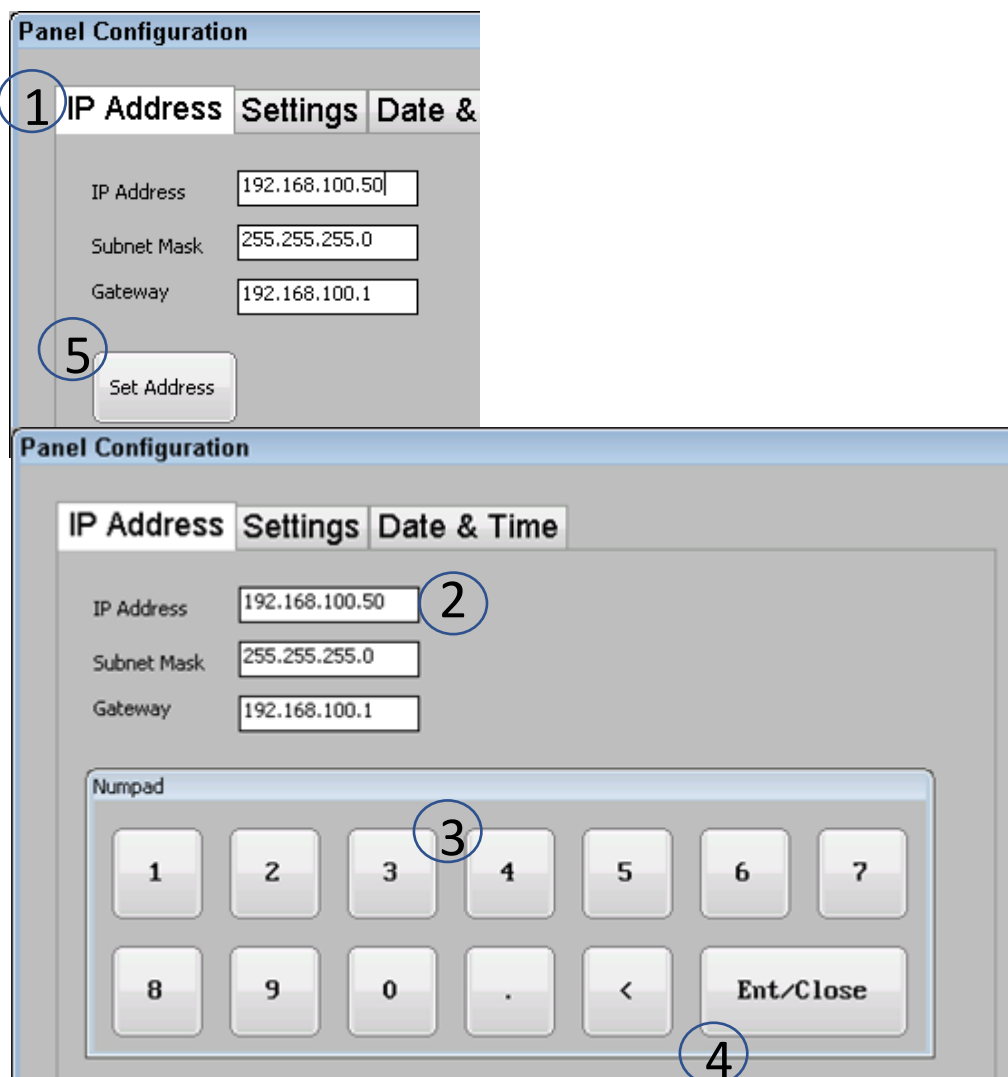


Figure 20 Network Settings

## 2.6. Edit Assigned Panel Name

To edit assigned panel's name, follow the steps as shown in Figure 21

- Go to "Home Screen" > "Panel Settings" > "Panel Info"
- Enter 6 digit password to gain access and press "Ent"
- Click on "Panel Name -" text to open context menu then press on "Edit Panel Name" option to open keypad dialog
- Edit current panel's name and press "Enter/Close" button on keypad dialog
- Confirmation of changed panel location will be shown in message box dialog

Note as the assigned panel name is used as part of various file names created by panel, therefore the invalid file name character '/' is prohibited for including as part of panel's name.

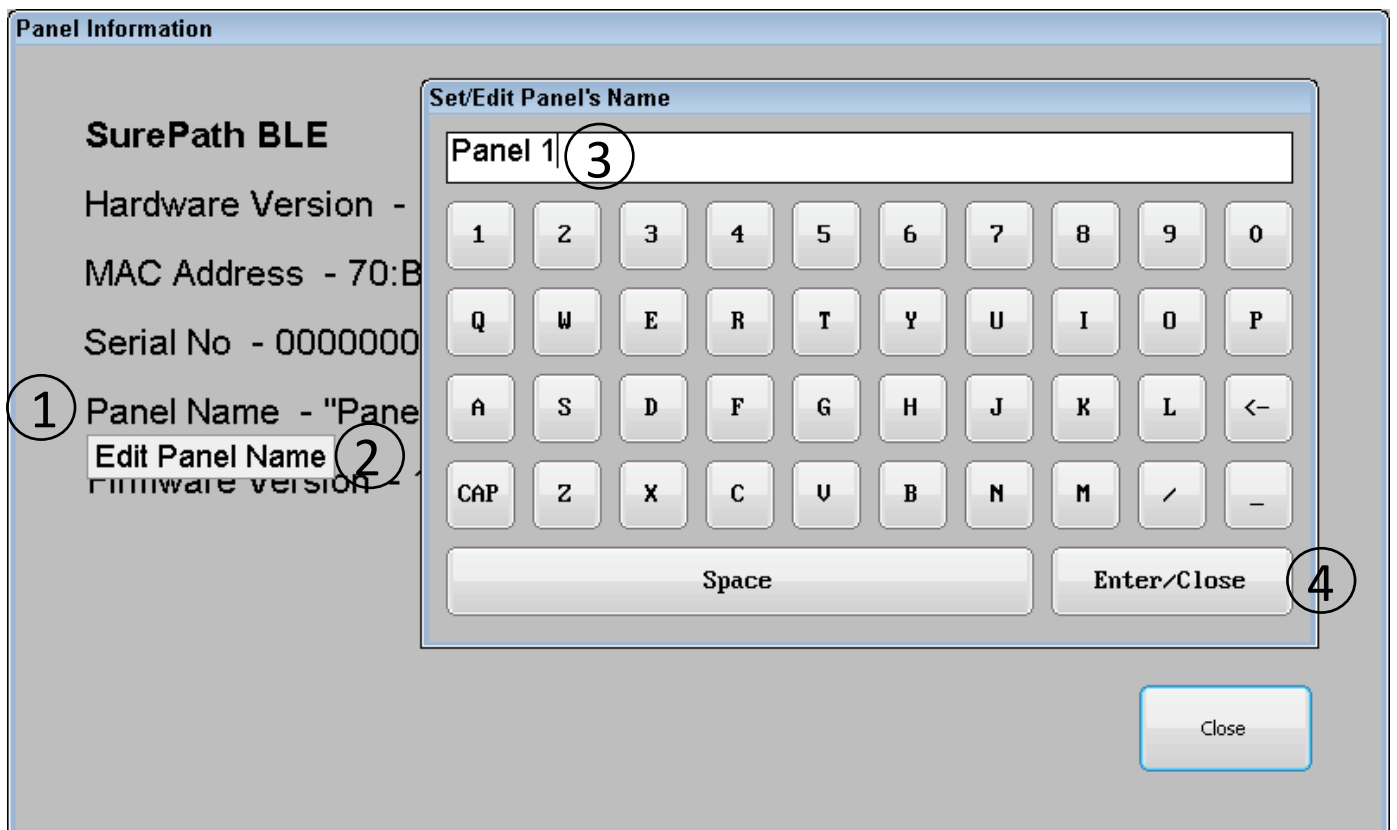


Figure 21 Edit Panel Name

## 2.7. Import/Export Panel Configuration

Configuration of the panel can be backed up/restored for emergency scenario (e.g. damaged panel) and safety on USB flash drive using following section.

To import/export configuration of the panel, follow the steps as shown in Figure 22

- Insert FAT32 formatted USB drive into the provided USB socket shown in Figure 2
- Go to “Home Screen” > “Panel Settings”
- Press and hold on the “Panel Config” icon for > 3 seconds, then release to open context menu
- On the context menu further select
  - “Export Panel Config” option to export configuration of the panel to the USB flash
  - “Import Panel Config” option to import already backed configuration from USB flash to the panel

\*Note: During export process a unique configuration file(\*.bkp) is created based on the MAC address into the root drive of the flash. While importing the configuration of panel, if it’s being imported on new panel then file name expected in USB flash needs to be adjusted as per new panel’s MAC address; which is displayed in Figure 13

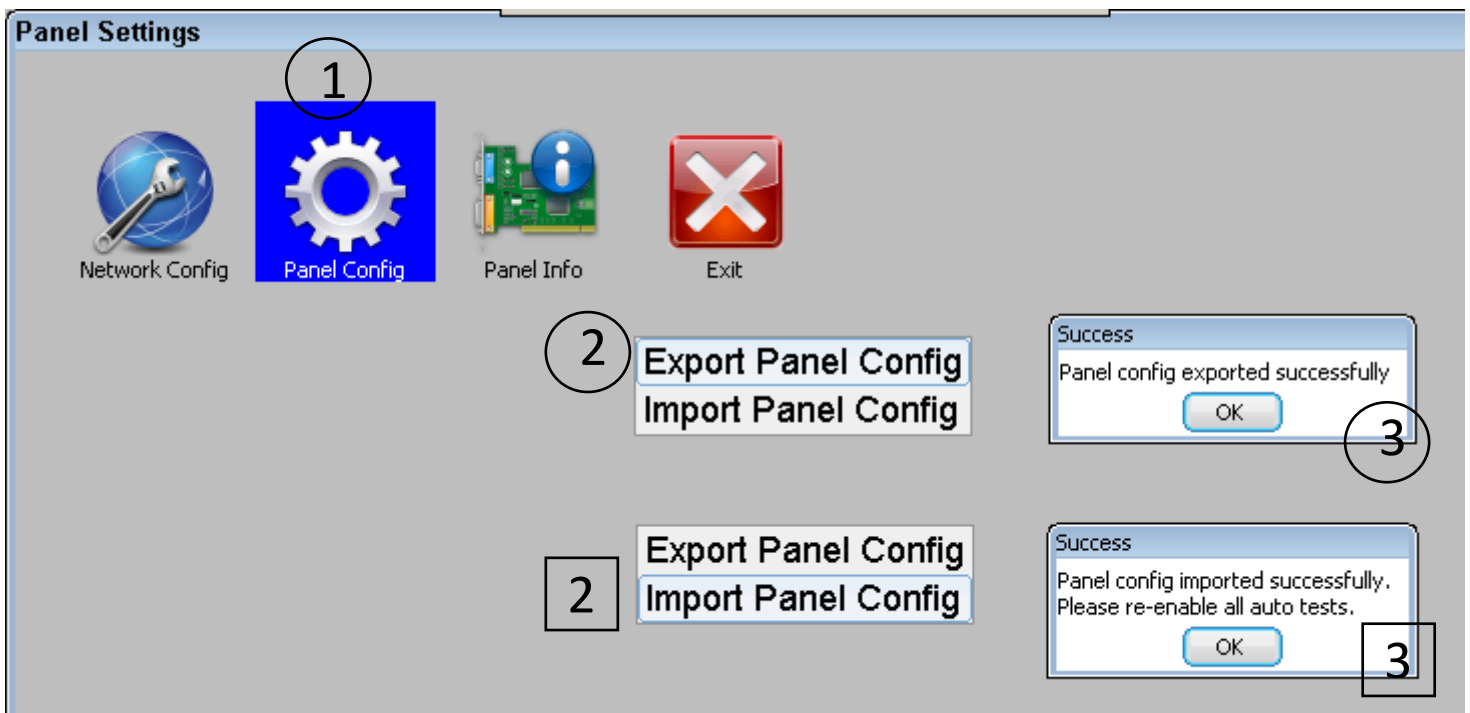


Figure 22 Import Export Panel Configuration

## 3. Commissioning the System

Before proceeding to commission the system please note, it is a requirement that the Bluetooth mesh network (containing all nodes) has been provisioned using the provisioner app first. The provisioning process assigns various keys to each node to form a wireless mesh network. For information on provisioning process please refer to separate user manual for provisioning using the mobile app.

### 3.1. Commissioning the Mesh Network

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

Note, every time either of mesh network gets commissioned all past test logs of the selected network are erased permanently. In addition, any enabled automatic tests are also disabled permanently.

Although the names of the luminaire are kept in panel's memory and will be referenced back to the old luminaires upon recommissioning the network; which is accomplished using unique MAC address of Bluetooth trans-receiver. **If any of test log information is required to be kept, it is recommended to export past test's logs as described in section 6.2**

To commission the mesh network follow the steps as shown in Figure 23

- Go to "Home Screen" > "Panel Settings" > "Network Config"
- Enter 6 digit password to gain access and press "Ent"
- Highlight the required mesh network(A or B) from the treeview widget then select the "Commission" process from radio button menu
- Further select "New Installation" option from radio button submenu and press "Start" button
- This will bring up confirmation dialog with the warning message, to proceed further press "Yes" on the dialog
- Later set the required engineer's contact information (min 1 and max 25 characters). This contact no is available for viewing on "Home Screen" after clicking "Engineer Contact" button. This can be used by end user to contact maintenance team upon encountering any error.
- Note the feedback of the current state of commissioning process that is being displayed on bottom part of "Network Configuration" window. Commissioning process cannot be interrupted and may take few minutes
- Upon finishing the commissioning process all newly commissioned luminaires are listed under selected network in treeview widget. Note newly added luminaire(s) will be appended with their default name as lower two bytes of their MAC address.

**Network Configuration**

- BLE Mesh
  - Network A (1)
  - Network B

**Warning!**  
This process will reassign new addresses to nodes and clear all logs for the selected BLE mesh network. Do you want to continue?

Yes (5) No

**Process / Command**

- Rescan Network
- Update Existing
- Identify
- New Installation (3)
- View Status
- Inhibit 15 min
- Function Test
- Duration Test
- Status Test
- Commission (2)

(4)

Start Stop

**Set/Edit Engineer Contact No**

ELP Ph 01268 786601 (6)

1	2	3	4	5	6	7	8	9	0
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	<-
CAP	Z	X	C	V	B	N	M	/	-

Space Enter/Close (7)

**Network Configuration**

- BLE Mesh
  - Network A
  - Network B

**Process / Command**

- Rescan Network
- Update Existing
- Identify
- New Installation
- View Status
- Inhibit 15 min
- Function Test
- Duration Test
- Status Test
- Commission (8)

Masking all short addresses: try 1  
Checking 1 replies..

Start Stop

**Network Configuration**

- BLE Mesh
  - Network A
  - A0\_FE42
  - Network B

**Process / Command**

- Rescan Network
- Update Existing
- Identify
- New Installation
- View Status
- Inhibit 15 min
- Function Test
- Duration Test
- Status Test
- Commission (9)

Commissioning finished. 1 new luminaire(s) commissioned

Start Stop Exit

Figure 23 Mesh Network Commissioning

## 3.2. Extending Mesh Network

A previously commissioned mesh network can be further extended to add several new luminaires (i.e. DALI short addresses masked) to the end of an existing luminaire list. Extending the mesh network does NOT affect any of the existing luminaires, nor does it erase any test logs or assigned luminaire names for selected network.

To extend existing mesh network follow the steps as shown in Figure 24

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Highlight the required mesh network from the treeview widget then select the “Commission” process from radio button menu
- Further select “Update Existing” and “Add Luminaire” option from radio button submenu and then press “Start” button
- This will bring up confirmation dialog with the warning message, to proceed further press “Yes” on the dialog
- Later set the required engineer’s contact information if required (min 1 and max 25 characters). This contact no is available for viewing on “Home Screen” after clicking “Engineer Contact” button. This can be used by end user to contact maintenance team upon encountering any error.
- Note the feedback of the current state of commissioning process that is being displayed on the bottom part of “Network Configuration” window. Commissioning process cannot be interrupted and may take few minutes
- Upon finishing the commissioning process all newly commissioned luminaires are listed under selected network in treeview widget. Note newly added luminaire(s) will be appended with their default name as lower two bytes of their MAC address.



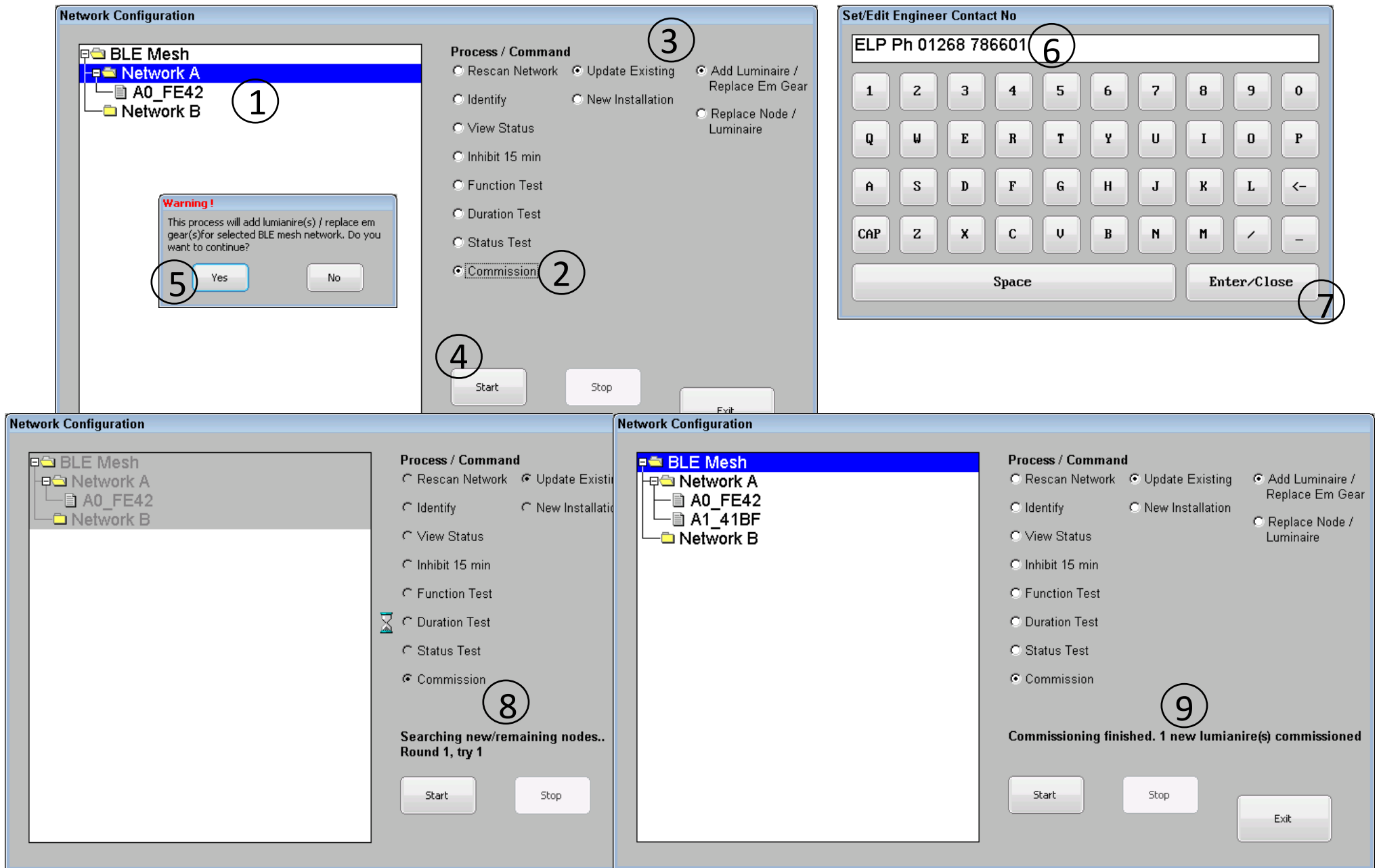


Figure 24 Mesh Network Extension

### **3.3. Replace Emergency Control Gear**

A previously commissioned luminaire whose emergency control gear may have become faulty can be replaced with the new emergency control gear by following this section. Please note that \*BLE DALI gateway(node) of such luminaire is expected to remain same for replacement process. For replacing faulty emergency control gear within old luminaire please physically remove old emergency control gear and replace it with a new one. By default, new emergency control gear would normally have its short address masked(removed), if the replacement gear is not new please make sure to mask replacement control gear's short address using appropriate DALI tools. If the appropriate DALI tool is unavailable in the field, please refer to user manual of BLE DALI gateway to enable the masking of the short address of emergency control gear connected to it.

Steps for replacing faulty emergency control gear are same as for that of a mesh network extension, therefore please go to section 3.2.

\*Applicable only if luminaire is composed of two-part assembly containing "Emergency DALI control gear" + "BLE DALI Gateway".

### 3.4. Replace Node / Luminaire

Previously commissioned luminaire OR luminaire whose \*BLE DALI gateway (Node) that may have become faulty can be replaced with the new one by following this section.

If replacing a complete luminaire, please make sure the new luminaire is provisioned for the required network using the provisioner app first before continuing this section further. If replacing only the node\* (BLE DALI gateway) note that emergency control gear of such luminaire needs its short address masked(removed) beforehand using appropriate DALI tools. If appropriate DALI tool is unavailable in the field, please refer to user manual of BLE DALI gateway to enable the masking of the short address of emergency control gear connected to it.

To replace existing luminaire/node follow the steps as shown in Figure 25 and Figure 26

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Highlight the required mesh network from the treeview widget then select the “Commission” process from radio button menu
- Further select “Update Existing” and “Replace Node / Luminaire” option from radio button submenu and then press “Start” button
- This will bring up confirmation dialog with the warning message, to proceed further press “Yes” on the dialog
- Later set the required engineer’s contact information if required (min 1 and max 25 characters). This contact no is available for viewing on “Home Screen” after clicking “Engineer Contact” button. This can be used by end user to contact maintenance team upon encountering any error.
- Note the feedback of the current state of commissioning process that is being displayed on the bottom part of “Network Configuration” window. Commissioning process cannot be interrupted and may take few minutes
- Once new luminaire(s) / Node(s) is/are found the panel will ask for the old luminaire’s short address that is to be replaced. Enter existing luminaire’s short address (0-63) from selected network in dialog box provided and press “Ent” button.
- Panel will then check if entered short address is missing from selected network. Once confirmed a confirmation dialog box will be presented with default name (“BLE\_DALI XX:XX” format) of the node. If it is the node to be replaced, then press “Yes” else “No”. If “No” is selected panel will present next node in list for confirmation.
- Upon confirming selection of the new node panel will then assign short address (that was entered in an earlier step) to new node. Note that replaced node will retain the old name unless the new node was already commissioned earlier. If there are no further new nodes the commissioning process will be concluded.

\*Applicable only if luminaire is composed of two-part assembly containing “Emergency DALI gear” + “BLE DALI Gateway”.

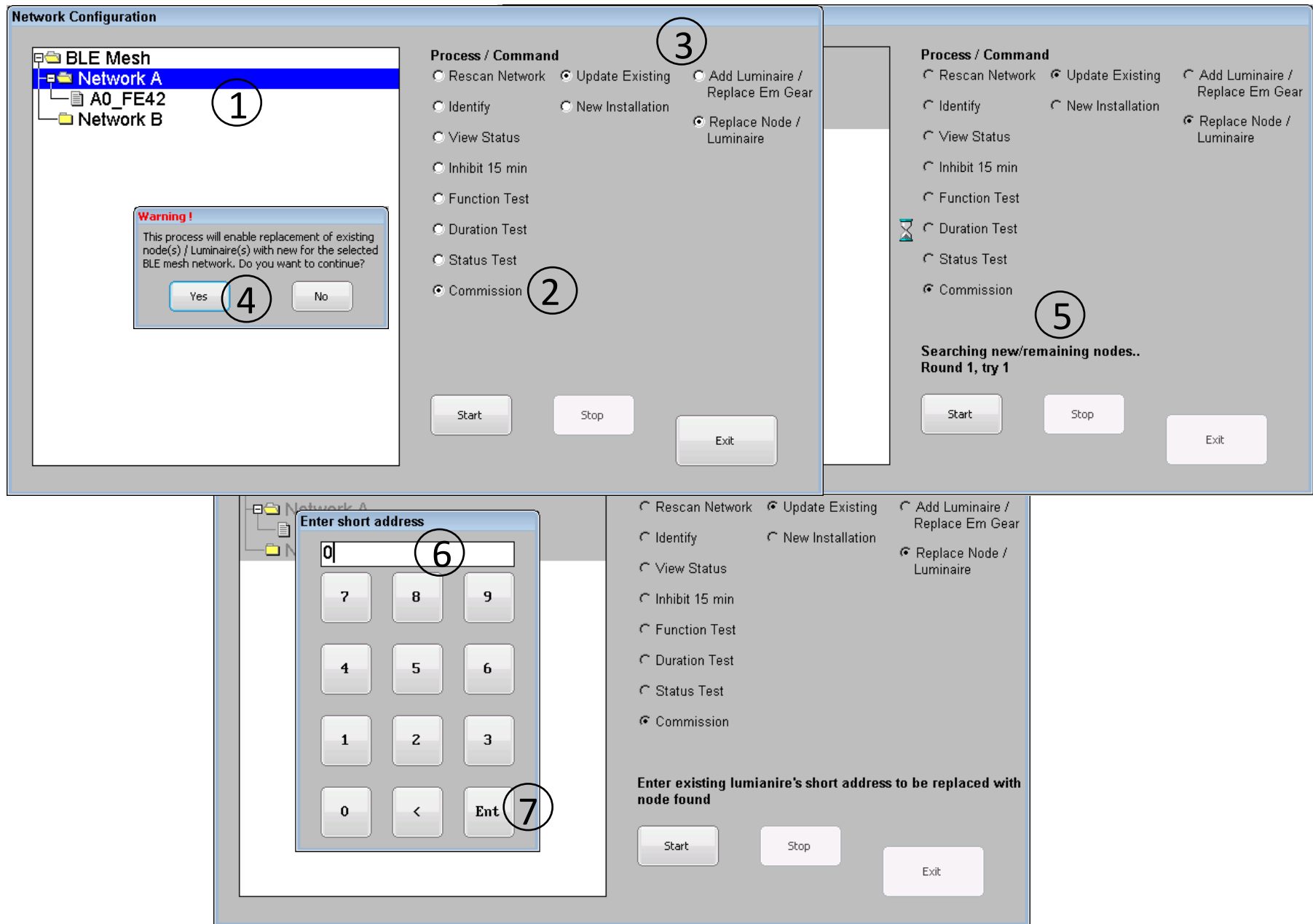


Figure 25 Replace Node/Luminaire 1

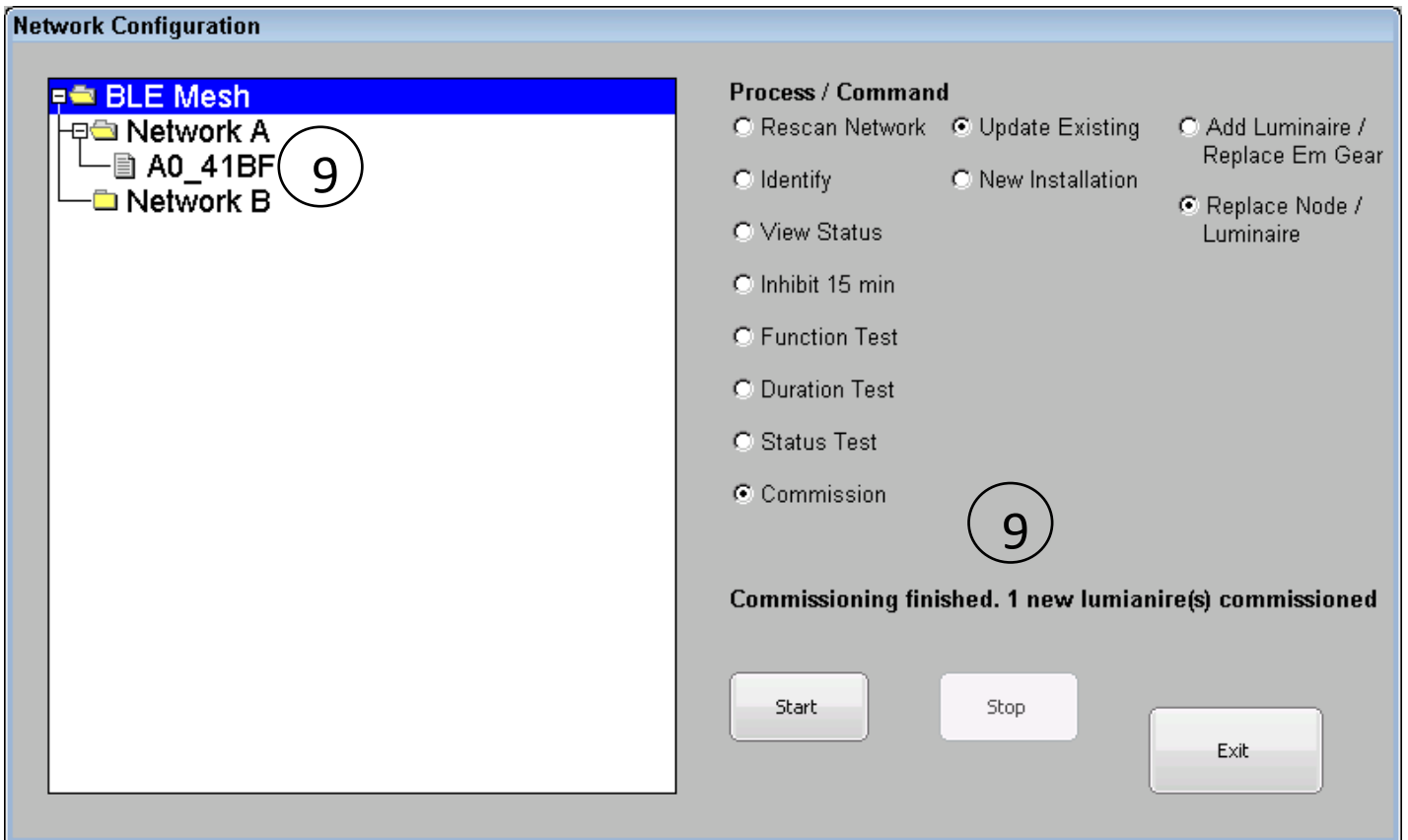
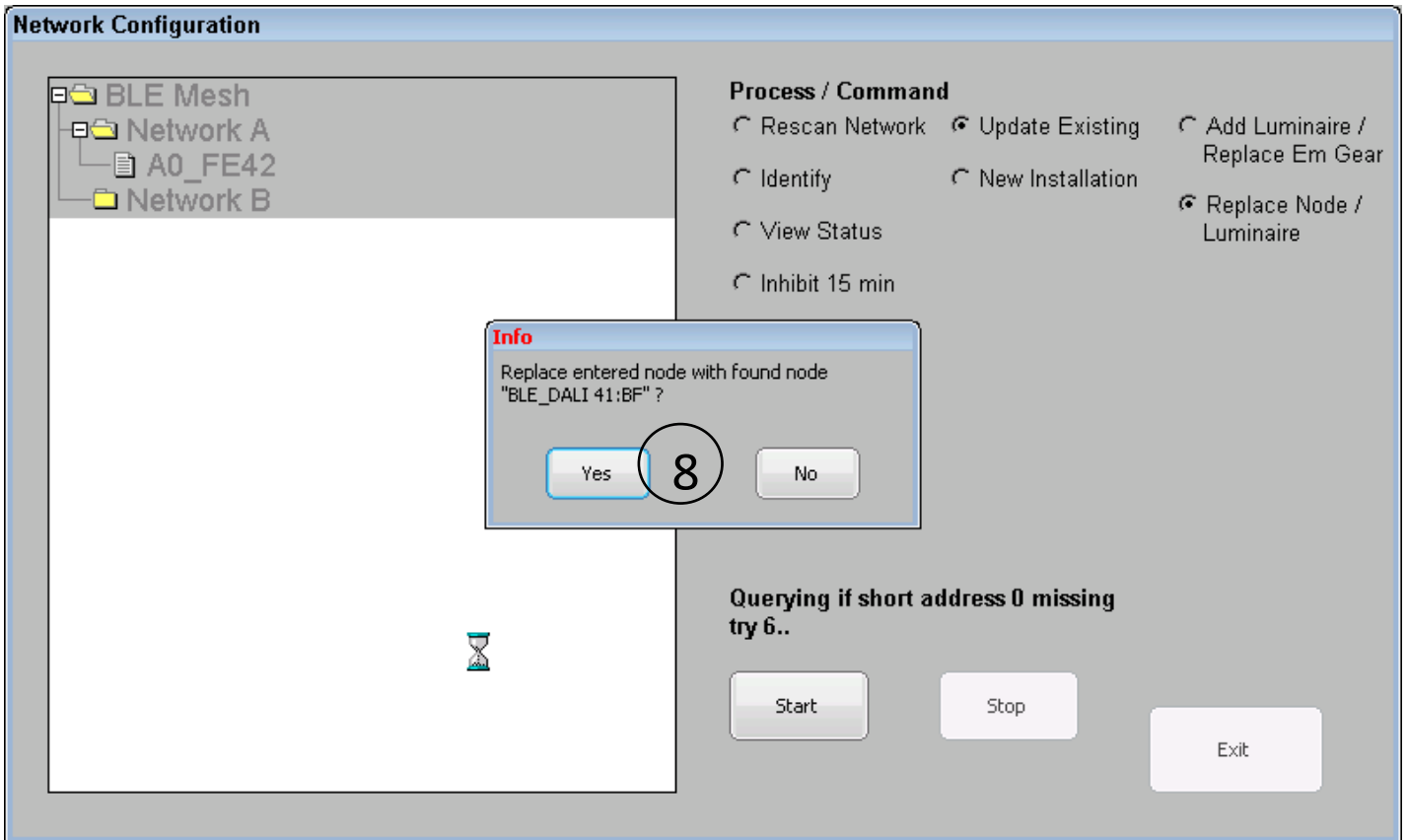


Figure 26 Replace Node/Luminaire 2

## 3.5. Commissioning Support Commands

### 3.5.1. 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 / network in identification mode. Note that the indication of the identify command may differ from manufacturer to manufacturer.

To place luminaire(s) in identification mode follow the steps as shown in Figure 27

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Network Configuration” window select “Identify” process from radio button menu
- In treeview widget highlight required luminaire or mesh network element then press “Start” button
- Selected luminaire(s) now should be in identification mode. Note identify process runs continuously until “Stop” button is pressed.

Note identify process for mesh network element (“Network X”/ “BLE Mesh”) is possible without the network being commissioned (but the nodes still need to be provisioned); this is to help test state/range of the mesh network.

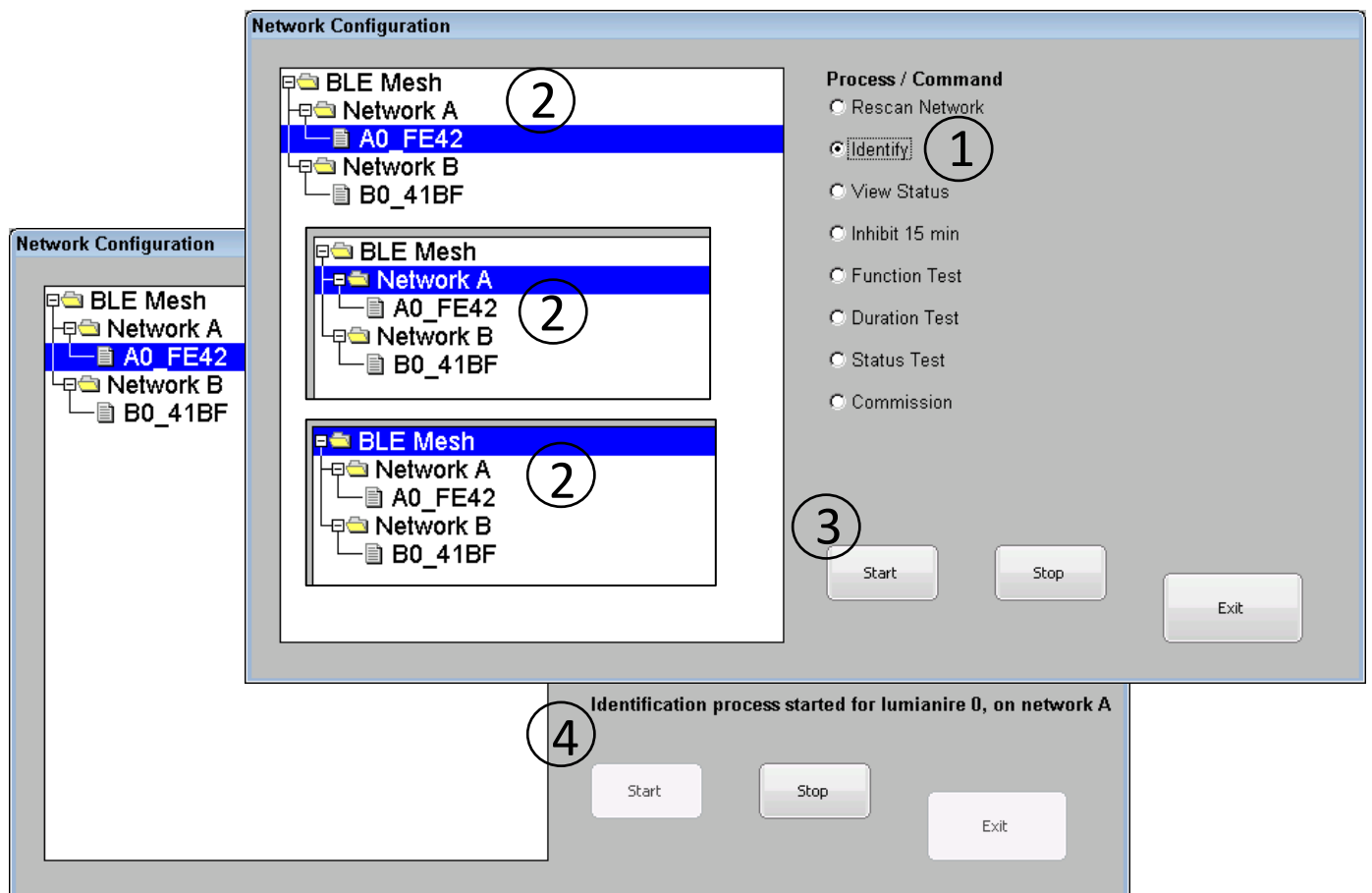


Figure 27 Identify Luminaire(s)

## 3.5.2. Assigning User Defined Names to Luminaire

For the unique identification of a luminaire, the panel supports a 25 characters wide arbitrary name for each individual luminaire. Supported characters are as follows: A-Z, a-z, 0-9, ' ', '\_' and '/'. A name can be assigned to an individual luminaire by using the touch screen as described in section 3.5.2.1 or by importing as list of names using a CSV file as described in section 3.5.2.2

### 3.5.2.1. Individual Name Assignment

To Set/Edit the name of a luminaire, follow the steps as shown in Figure 28

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- In treeview widget highlight a required luminaire then, then press and hold (>1 sec) on highlighted luminaire to open context menu
- On context menu select “Edit Luminaire Name” option to open a 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.

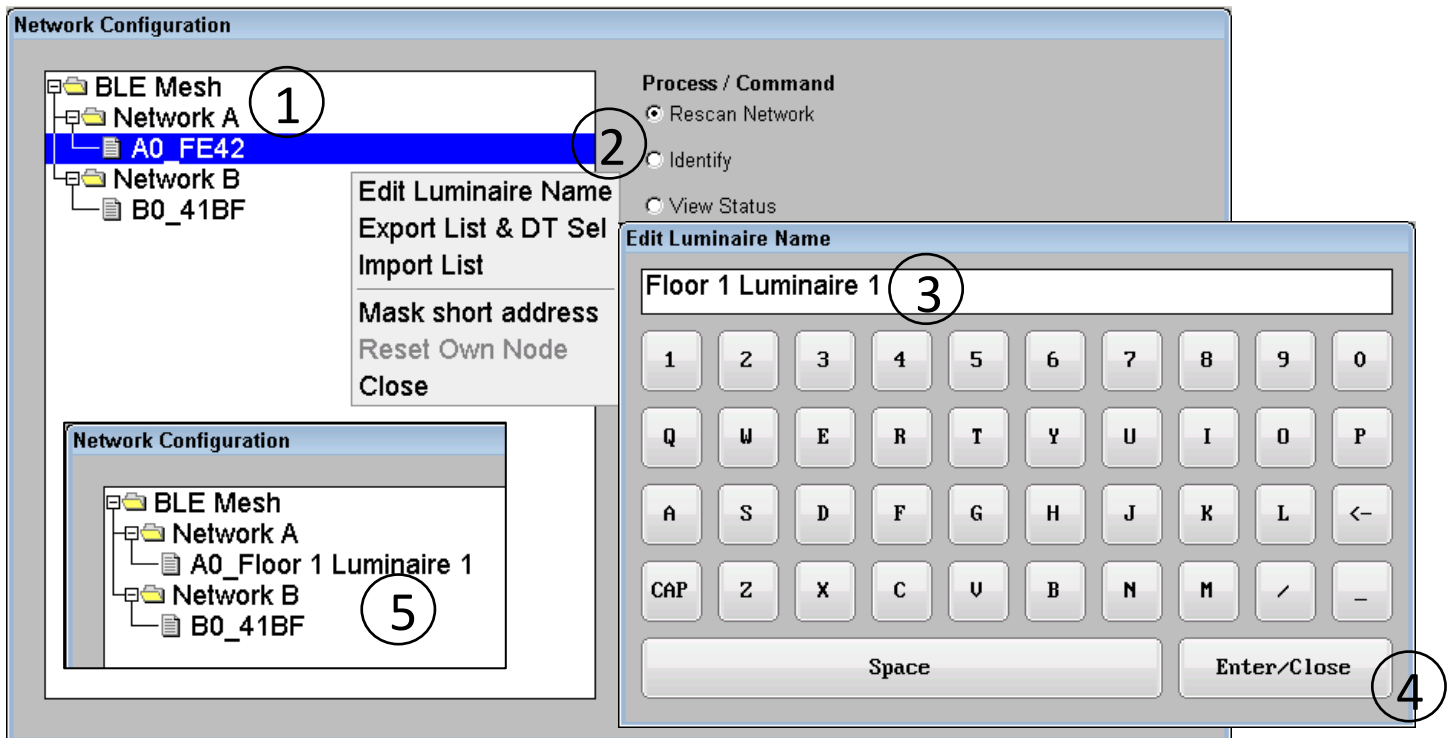


Figure 28 Individual Luminaire Name Assignment

### 3.5.2.2. Importing Assigned Luminaire Names

After completion of commissioning and identification process as described in section 3.1 and 3.5.1 respectively 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 10.1, alternately the user can use the export process described in section 3.5.2.3 to create the required CSV file in USB flash drive and then later edit the same for importing a name list as described in following section.

To import the name list of the luminaires, follow the steps as shown in Figure 29

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- 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 the panel.
- Inside the treeview widget press and hold (>1 sec) to open a context menu and select “Import List” option on context menu.
- The result of luminaire names list import will be confirmed by pop up dialog.

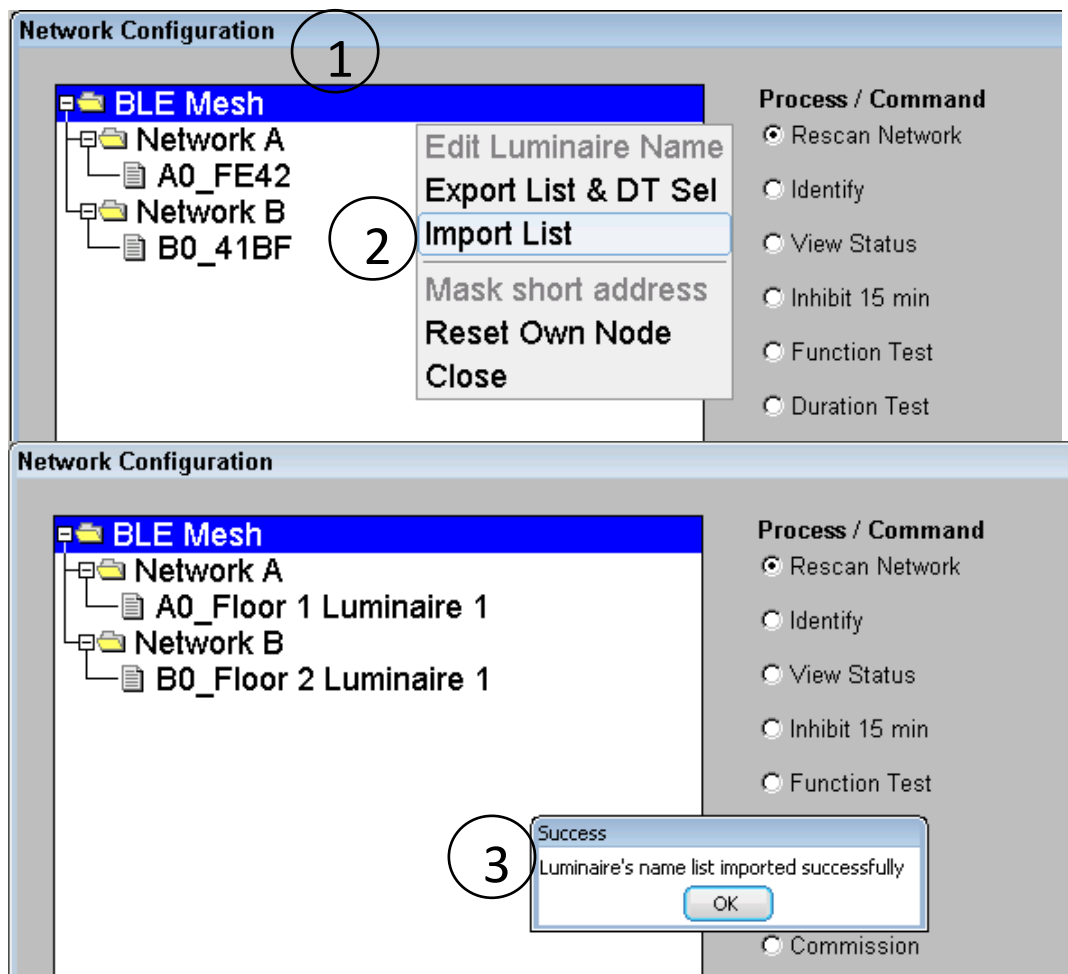


Figure 29 Import Name list of Luminaire



### 3.5.2.3. 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 30

- Go to "Home Screen" > "Panel Settings" > "Network Config"
- 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
- Inside the treeview widget press and hold (>1 sec) to open a context menu
- On context menu select "Export List & DT Sel" option
- The result of the \*export will be confirmed by pop up dialog.

\*A CSV file in the root directory of USB flash drive with name "xxx\_LuminaireNames.csv" will be created. Where "xxx" represents the assigned name of the panel. Sample of exported name list and DT selection table is shown in appendix section 10.2

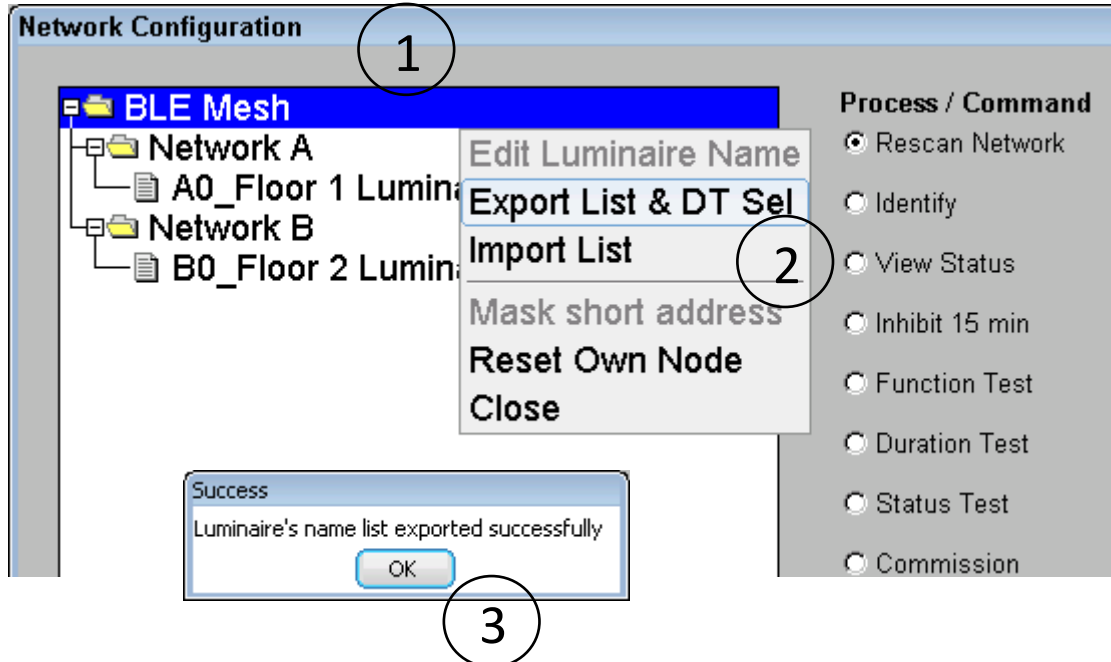


Figure 30 Export Name list of Luminaire

### 3.5.3. Mask Short Address

To aid the process of commissioning the panel features a command to mask a luminaire added to mesh network 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 Network" command detailed in section 4.1, provided they have short address already assigned.

Masking luminaire allows it

- To be physically moved and assigned new short address. See section 3.2
- To be replaced with existing luminaire entry listed under same mesh network in panel. See section 3.3
- To be hidden from panel's view.

To mask short address of required luminaire follow the steps as shown in Figure 31

- Go to "Home Screen" > "Panel Settings" > "Network Config"
- Enter 6 digit password to gain access and press "Ent"
- In treeview widget highlight a required luminaire then, press and hold (>1 sec) on highlighted luminaire to open context menu.
- On context menu select "Mask short address" option
- After communicating with requested luminaire feedback will be shown for confirmation

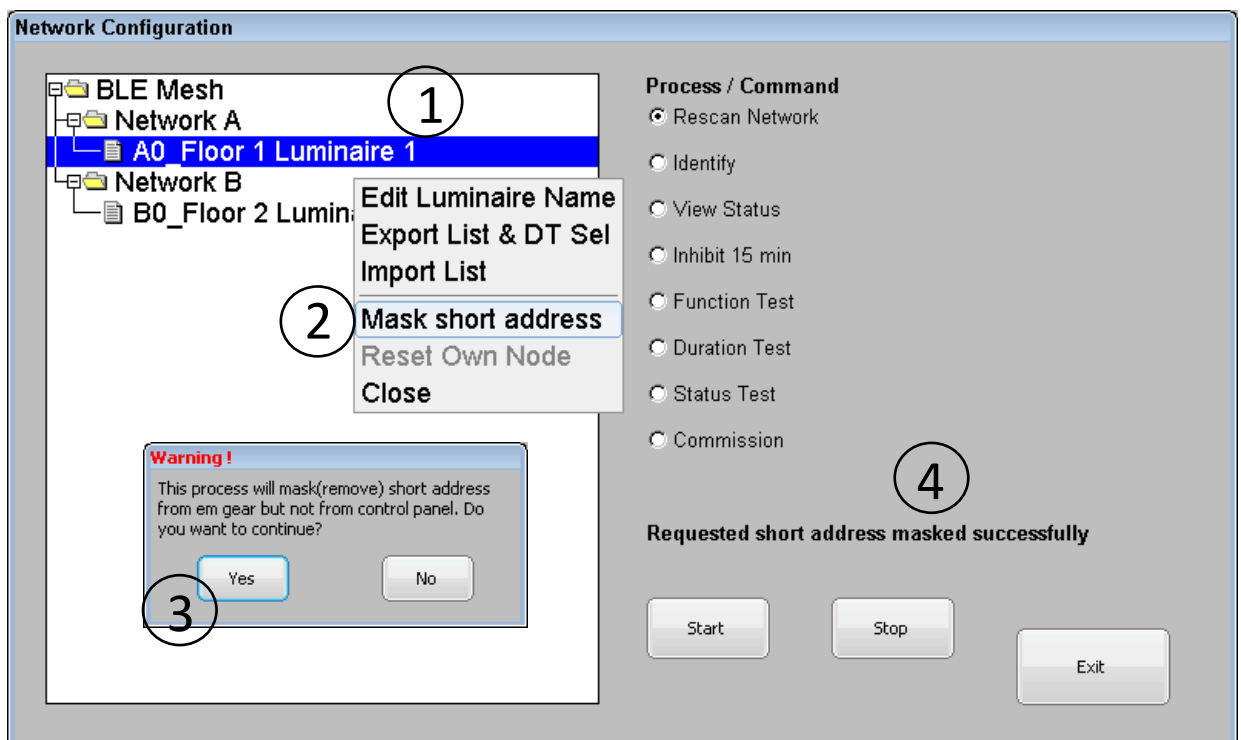


Figure 31 Mask short address

## 4. Additional Commands

To aid installation and for diagnosis of the mesh network the panel features extra commands i.e. “Rescan Network”, “Inhibit 15 min” and “View Status”. Details of each command available is described in following section.

### 4.1. Rescan Network

The “Rescan Network” is diagnostic command which scans selected mesh network 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, while for luminaires which were not commissioned but found on the network, a plus sign(+) is prefixed to their name. For those luminaires that were commissioned and found, the name remains unchanged.

Note updated treeview widget changes are displayed temporary and would lose displayed structure upon closing of the “Network Configuration” window. Also updated treeview network structure is not in sync with panel’s memory (commissioned state); thus after executing “Rescan Network” other command/process are not able to operate. For further operation of other command/process a reloading of panel’s memory is required by exiting “Network Configuration” window and re-entering again.

To execute “Rescan Network” command follow the steps as shown in Figure 32

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Network Configuration” window select the required network to be scanned
- Select “Rescan Network” command on the radio button menu
- Press “Start” button to perform scan
- Upon finishing the scan result will be displayed on bottom part of window. Note scan process can be interrupted by pressing “Stop” button

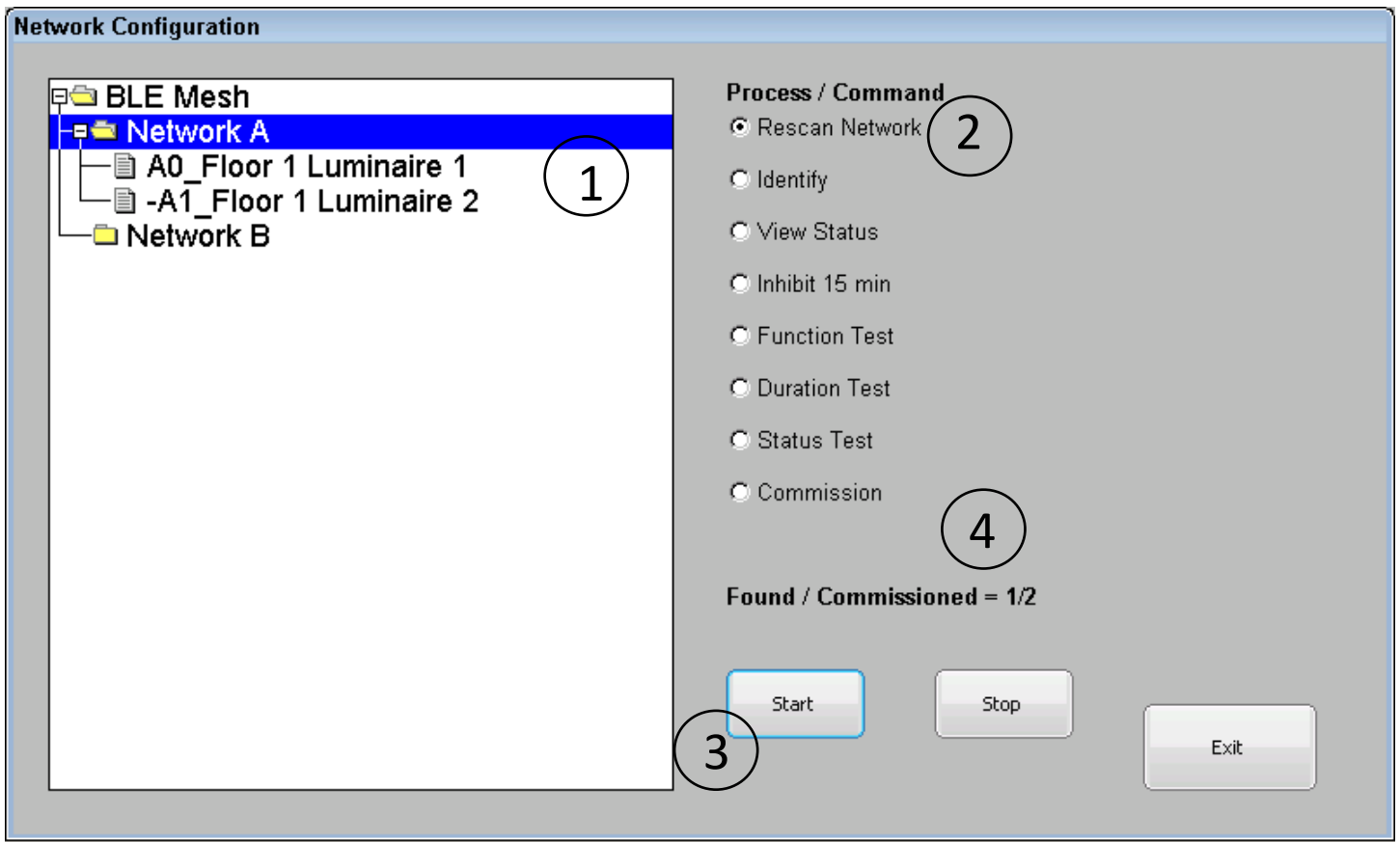


Figure 32 Rescan Network

## 4.2. 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. By virtue of which luminaire would not enter emergency mode in event of mains failure, after expiry of 15 min timer luminaire returns to normal mode.

To execute “Inhibit 15 min” command perform following steps

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Network Configuration” window highlight the required luminaire or mesh network entity (“Network X”/ “BLE Mesh”)
- Select “Inhibit 15 min” command on the radio button menu
- Press “Start” button to send command.
- Conversely press “Stop” button to end last started inhibit mode.

### 4.3. 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 33

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- In the “Network Configuration” window highlight the required luminaire
- Select “View Status” command on the radio button menu
- Press “Get” button to acquire information
- Current status of the luminaire will be retrieved and displayed in new dialog window; status can be further updated by pressing “Refresh” button on the dialog

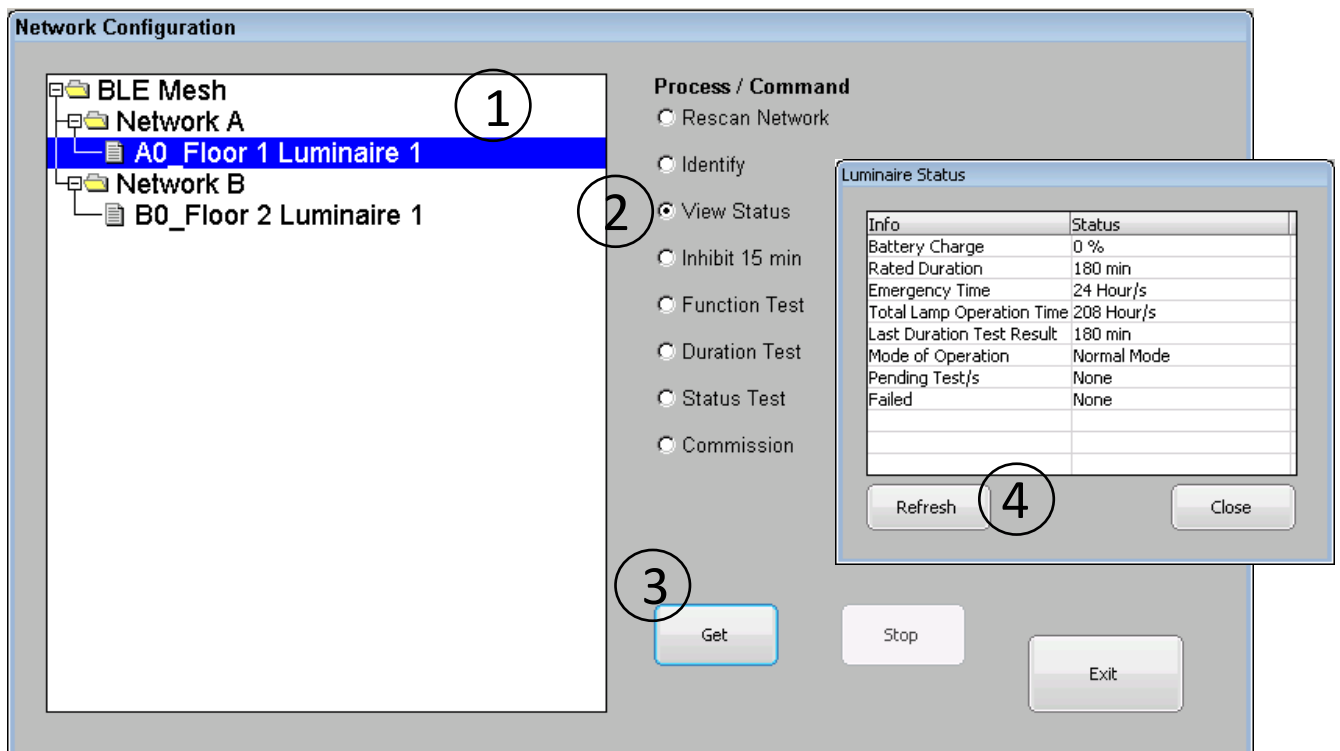


Figure 33 View Status

## 4.4. Reset Own Node

Once provisioned if required the BLE mesh node of the panel can be reset(un-provisioned) from the panel. After un-provisioning the panel node will start transmitting un-provisioned beacons and therefore will be visible on the mobile provisioning app for further re-provisioning.

To reset the panel node follow the steps as shown in Figure 34

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- In treeview widget highlight “BLE Mesh” then, press and hold (>1 sec) to open context menu.
- On context menu select “Reset Own Node” option
- On confirmatory dialog press “Yes”
- The result will be confirmed by pop up dialog

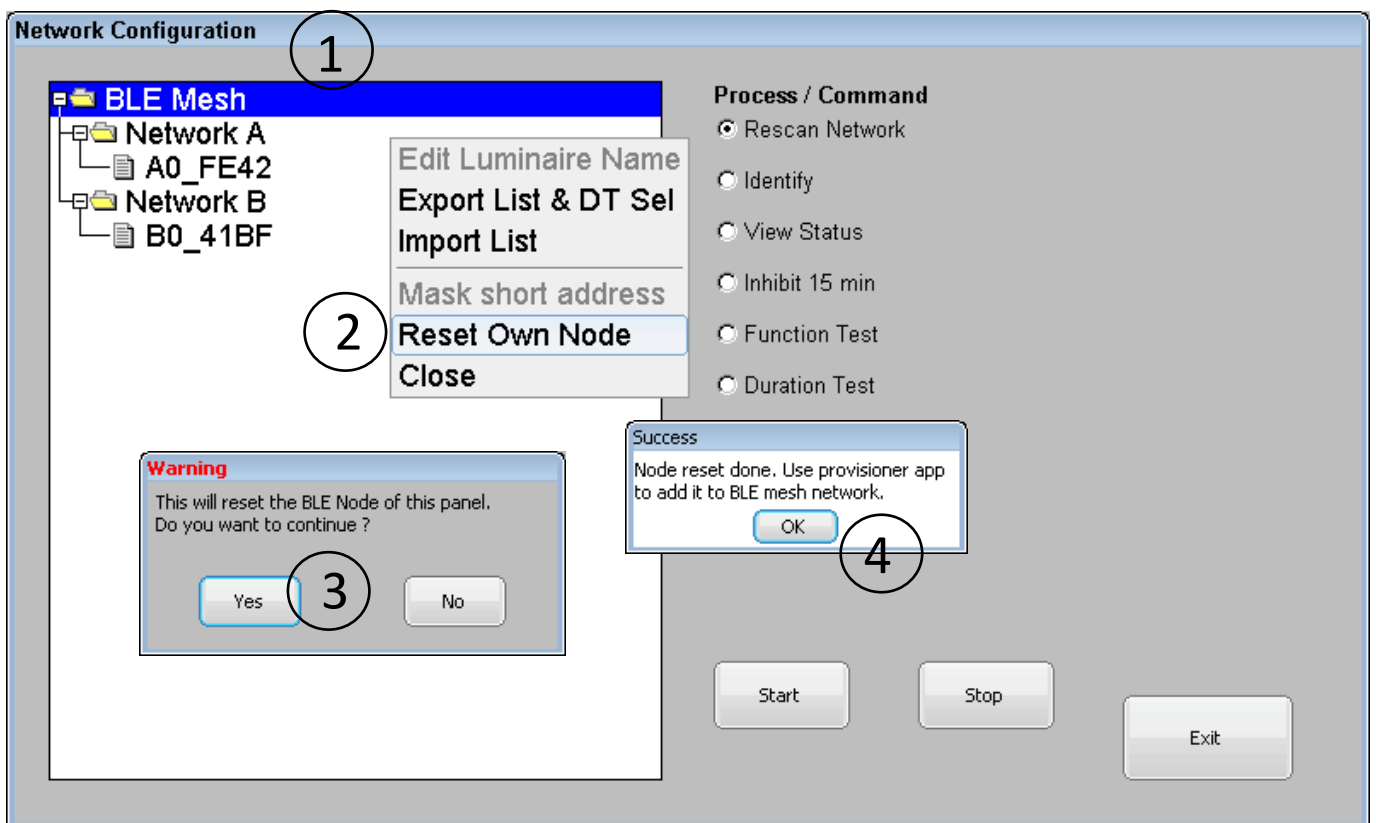


Figure 34 Reset Own Node

## 5. Configuring Tests

### 5.1. Automatic Testing

The panel supports 3 automatic tests namely function, duration and status tests. Automatic function and duration test are user configurable while automatic status test is compulsory and is performed daily.

#### 5.1.1. Function Test

An automatic function test can be scheduled to occur monthly at a chosen date & time on all the emergency luminaires listed in treeview widget of “Network Configuration” window. Whilst performing this test if any luminaire does not complete the test or does not start the test; the panel will postpone acquiring the results for all luminaire in steps of 1 minute for next 60 minutes maximum. After expiry of 60 min delay any unresponsive luminaire will be marked as unreachable and will result in test failure.

To setup/edit automatic function test follow the steps as shown in Figure 35

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Select “Function Test” command from the radio button menu
- Further select “Auto Test” option from radio button submenu
- Press “Setup Test” button to proceed further  
This will open a dialog window for setting new date & time and state of function test. Newly opened dialog will reflect current date & time and current test state of the automatic function test.
- Using scroll arrows on calendar widget to choose new \*date of the month
- Use spin boxes (HH, MM, SS) to set the required time of the day
- Choose new state of test (On/Off)
- Press “Schedule Test” button to commit changes.
- Confirmation of change will be shown on pop up dialog.

Current configuration and state of automatic function test can be viewed in “System Status” windows as shown in Figure 7

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

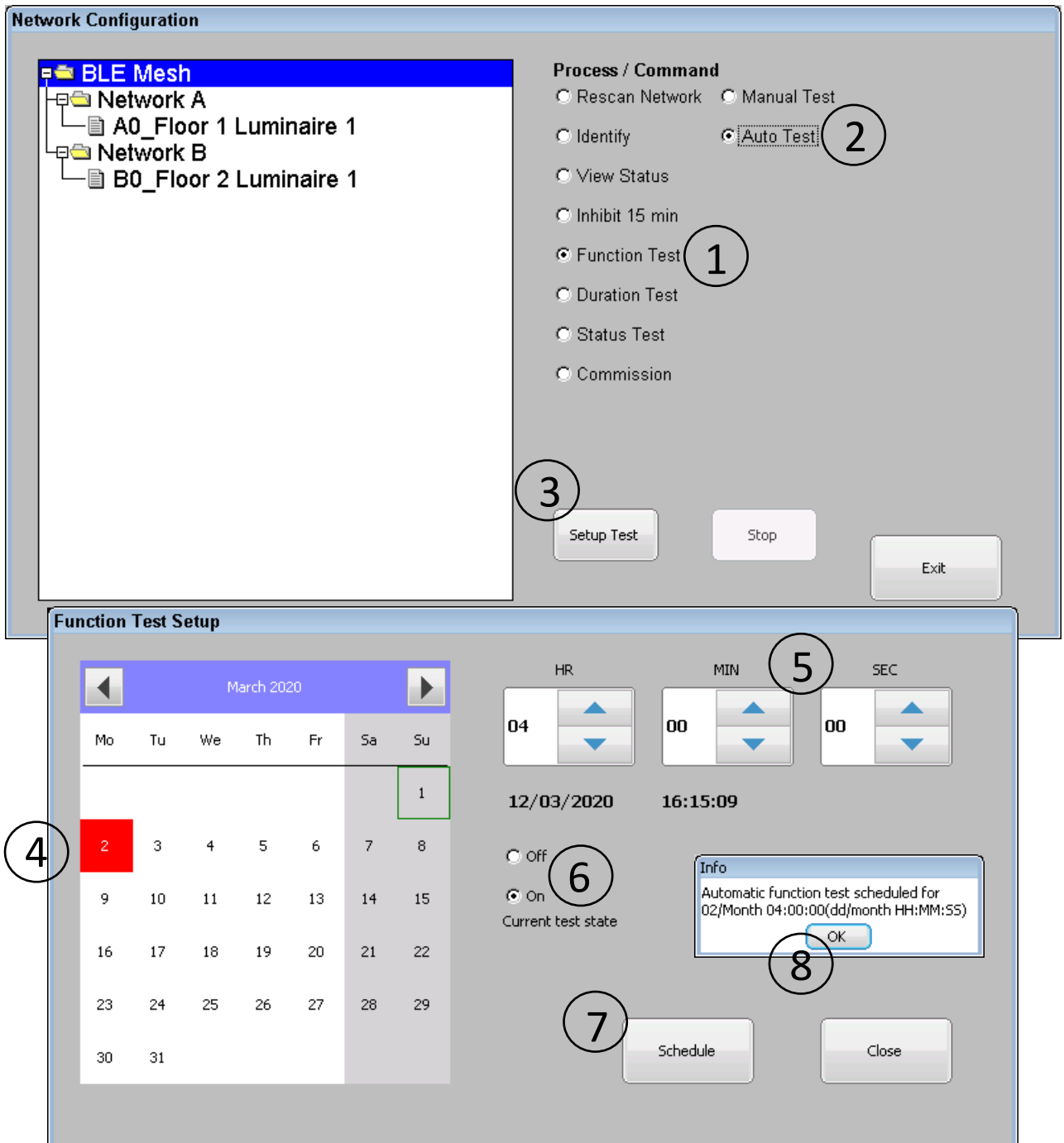


Figure 35 Function Test (Auto) Setup



### 5.1.2. Duration Test

An automatic duration test can be scheduled to occur annually at a chosen date & time on the selection of emergency luminaire(s) listed in treeview widget of “Network Configuration” window. The automatic duration test can split all luminaires into 4 possible groups, with each group comprising of either a number of emergency luminaires and/or a whole mesh network. 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 being 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 does not start the test; the panel will then postpone acquiring results for all luminaire in steps of 1 hour for next 24 hours max. After expiry of the 24 hours delay any unresponsive luminaire will be marked as unreachable and will result in test failure.

To setup/edit automatic duration test follow the steps as shown in Figure 36

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Select “Duration Test” command from the radio button menu
- Further select “Auto Test” option from radio button submenu  
Above radio button menu selections will cause treeview widget to reflect stored selection of luminaire/network with a green check mark (✓) for displayed group (e.g. Group 1).
- Using dropdown menu select required test group  
Changing displayed group using dropdown menu will reflect the stored selection for that particular group
- Then select (✓) required luminaires or network from treeview widget for chosen test group
- Press “Save Sel & Continue” button to proceed further  
This will open dialog window for setting new date & time and state of duration test. Newly opened dialog will reflect current date & time and current test state of the automatic duration test for chosen group.
- Using scroll arrows on calendar widget choose new \*date of the month
- Use spin boxes (HH, MM, SS) to set the required time of the day
- Choose new state of test (On/Off)
- Press “Schedule Test” to commit changes.
- Confirmation of change will be shown on pop up dialog.

Current configuration and state of automatic duration test can also be viewed in “System Status” windows as shown in Figure 7

\*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.

### Network Configuration

**BLE Mesh**

- [-] Network A
  - ✓ A0\_Floor 1 Luminaire 1
- [-] Network B
  - B0\_Floor 2 Luminaire 1

**Process / Command**

Rescan Network     Manual Test  
 Identify             Auto Test  
 View Status  
 Inhibit 15 min  
 Function Test  
 Duration Test  
 Status Test  
 Commission

Group 1 ▼

Save Selection & Continue    Stop    Exit

### Duration Test Group 1 Setup

December 2020

Mo	Tu	We	Th	Fr	Sa	Su
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

HR: 00    MIN: 00    SEC: 00

12/03/2020    16:54:17

Off  
 On

Current test state

Schedule    Close

Info

Duration test for Group 1 enabled on 25/12 00:00:00(dd/mm HH:MM:SS)

OK

Figure 36 Duration Test (Auto) Setup

### **5.1.3. Status Test**

A status test is an automatic test that is performed daily at 00:00 HRS to check connectivity between the panel & luminaires as well as for checking for any battery failures. Results of this test are stored in battery backed up RAM and retained through a power down state of the panel. Any failures found during the “Status Test” will reflect on the network status icon displayed on home screen as shown in Figure 6.

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. During status test if any of luminaire are found to be unreachable or has its battery failed will result in status test being failed.

## **5.2. Manual Test**

The panel features manual test functionality for function, duration and status test so that the required test on arbitrary selection 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 network, while status test is performed on all commissioned emergency 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

### 5.2.1. Function Test

A manual function test can be performed on any of the emergency luminaire listed in the treeview widget of the “Network Configuration” window. Whilst performing this test if any luminaire does not complete the test or has not started the test; panel will then postpone acquiring results for all luminaire in steps of 1 minutes for next 60 minutes max. After expiry of 60 min delay any unresponsive luminaire will be marked as unreachable and will result in test failure.

To start manual function test follow the steps as shown in Figure 37

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Select “Function Test” command from the radio button menu
- Further select “Manual Test” option from radio button submenu
- Above radio button menu selections will cause treeview widget to reflect stored selection of luminaire/network with a green check mark (✓)
- Then select (✓) required luminaires or network from treeview widget for test
- Press “Initiate” button start the test.
- Confirmation of test start will be displayed on pop up dialog.

Note started manual function test can be stopped at any stage before acquiring test results by pressing “Stop” button on “Network Configuration” window with above radio button options selected.

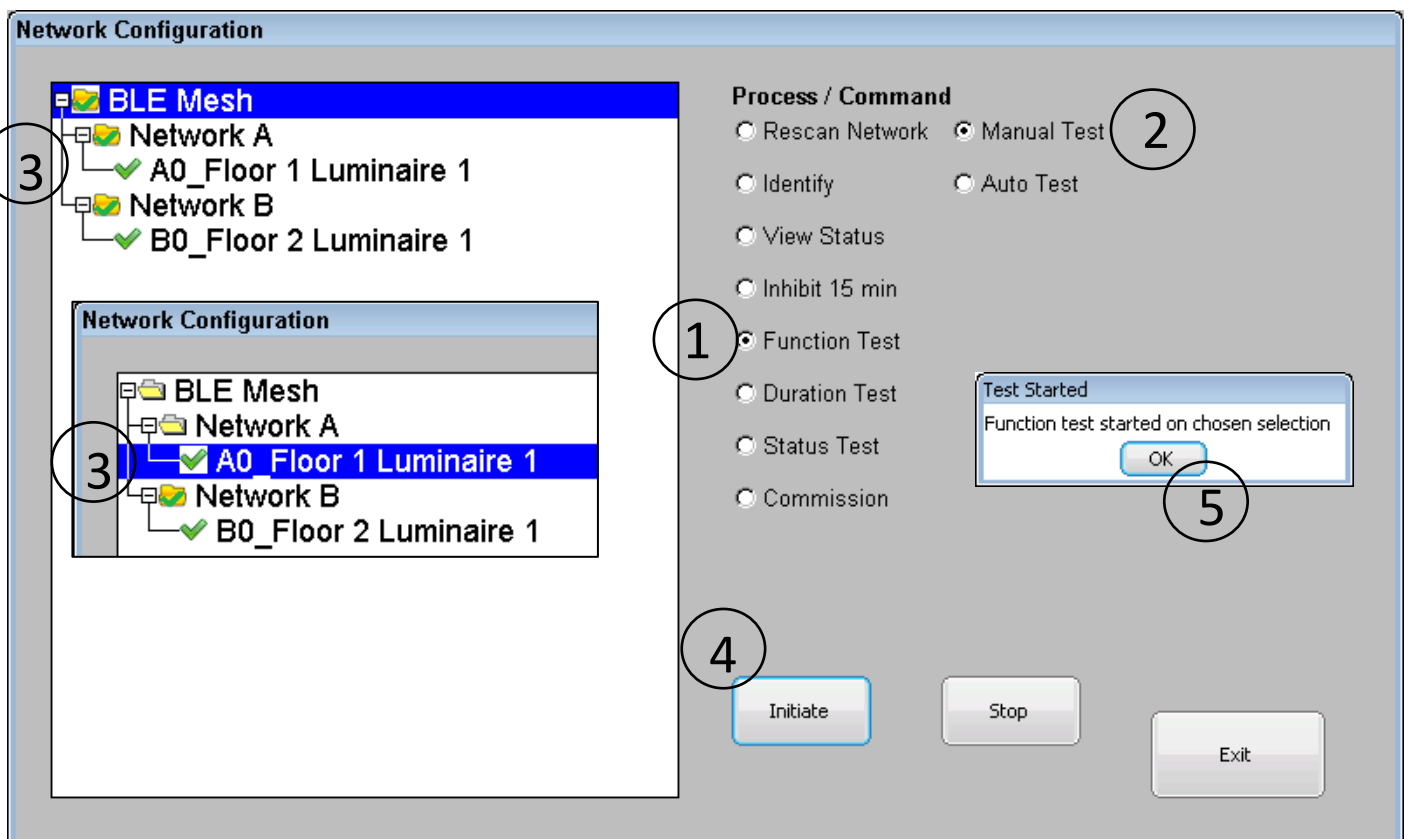


Figure 37 Manual Function Test

### 5.2.2. Duration Test

Manual duration test can be performed on any of the emergency luminaire listed in the treeview widget of the “Network Configuration” window. Whilst performing this test if any luminaire does not complete the test or does not start the test; panel will then postpone acquiring results for all luminaire in steps of 1 hour for next 24 hours max. After expiry of 24 hours delay any unresponsive luminaire will be marked as unreachable and will result in test failure.

To start manual duration test follow the steps as shown in Figure 38

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Select “Duration Test” command from the radio button menu
- Further select “Manual Test” option from radio button submenu
- Above radio button menu selections will cause treeview widget to reflect stored selection of luminaire/network with a green check mark (✓)
- Then select (✓) required luminaires or network from treeview widget for test
- Press “Initiate” button start the test.
- Confirmation of test start will be displayed on pop up dialog.

Note started manual duration test can be stopped at any stage before acquiring test results by pressing “Stop” button on “Network Configuration” window with above radio button options selected.

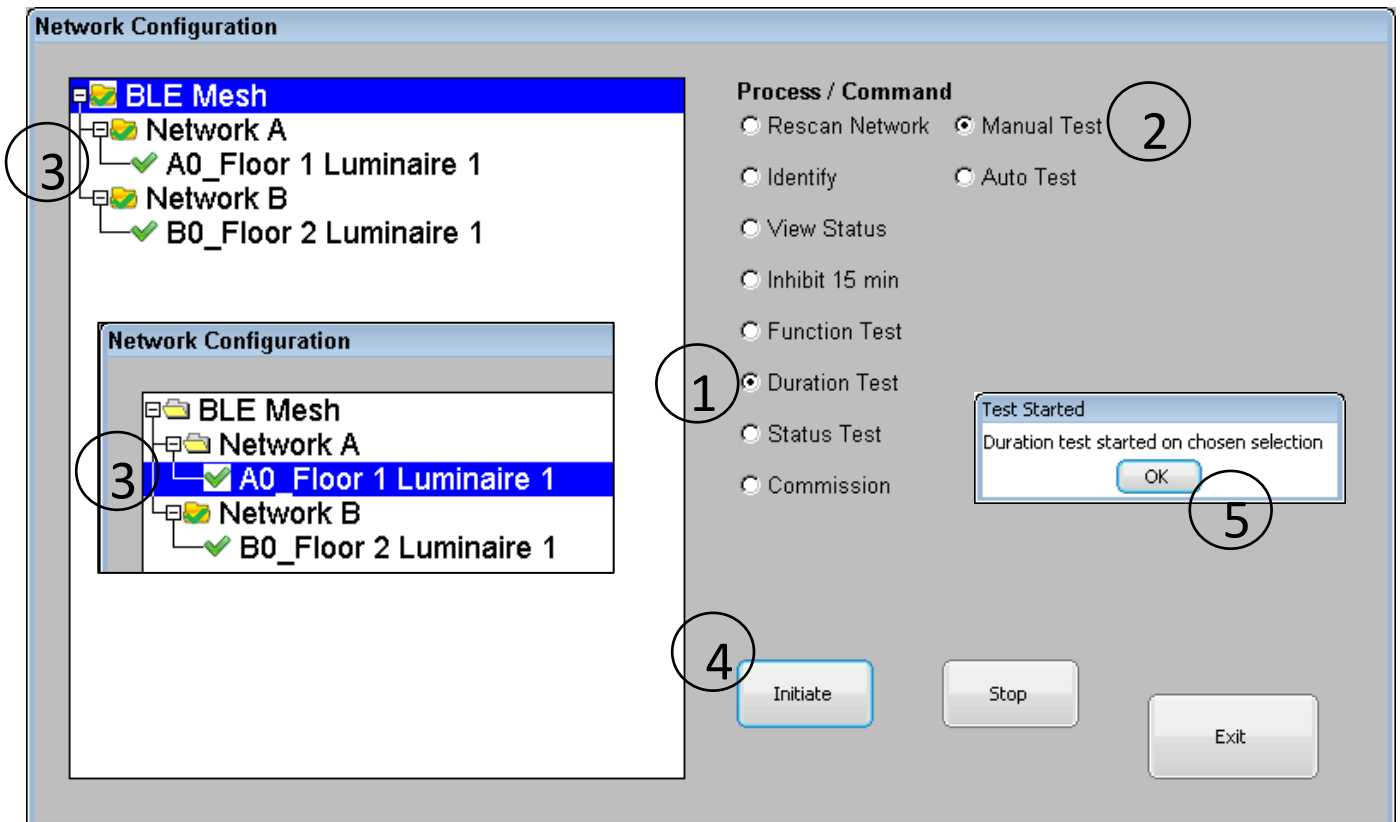


Figure 38 Manual Duration Test

### 5.2.3. Status Test

A manual status test can be performed on all the emergency luminaire listed in the treeview widget of the “Network Configuration” window.

To start manual status test follow the steps as shown in Figure 39

- Go to “Home Screen” > “Panel Settings” > “Network Config”
- Enter 6 digit password to gain access and press “Ent”
- Select “Status Test” command from the radio button menu
- Press “Start” button start the test.
- Confirmation of test start will be displayed on pop up dialog.

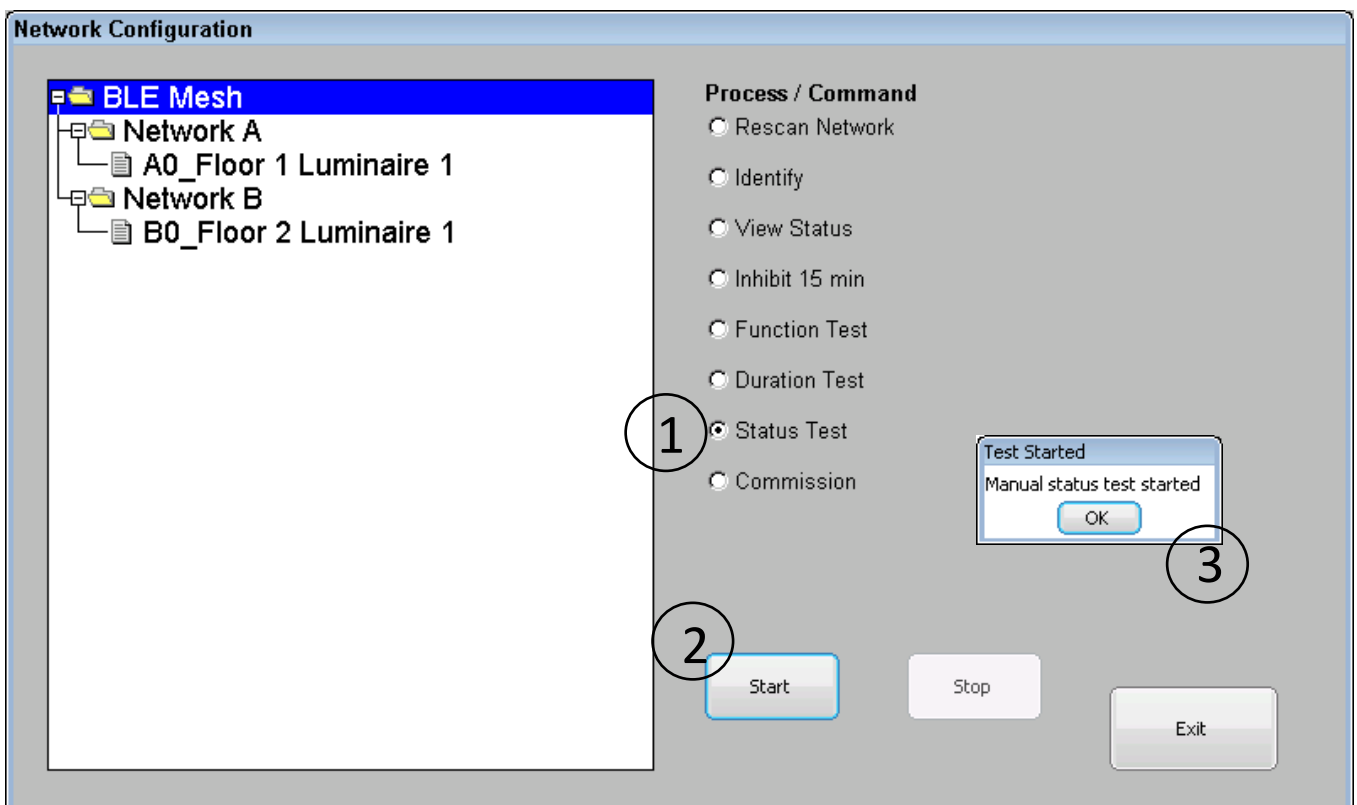


Figure 39 Manual Status Test

## 6. Test Results

### 6.1. Viewing on Panel

#### 6.1.1. Last Standard Test Results

The last test results of a function/duration (Auto/Manual) test can be viewed in the “System Status” window.

To view last standard test’s results, follow the steps as shown in Figure 40

- Go to “Home Screen” > “Status & logs”
- Select “Last FT / DT Log” option from radio button menu
- Press “View” button to open last test log results window  
This will open a last test log window listing all the luminaires those were tested detailing the test type(Function/Duration), test method(Auto/Manual) and the date & time of the test with quick snapshot of the results
- To view further details of a luminaire highlight required luminaire from the provided list
- Then press “View Details” button to get luminaire status
- Details of luminaire lists a snapshot of various important variables recorded at the end of the test

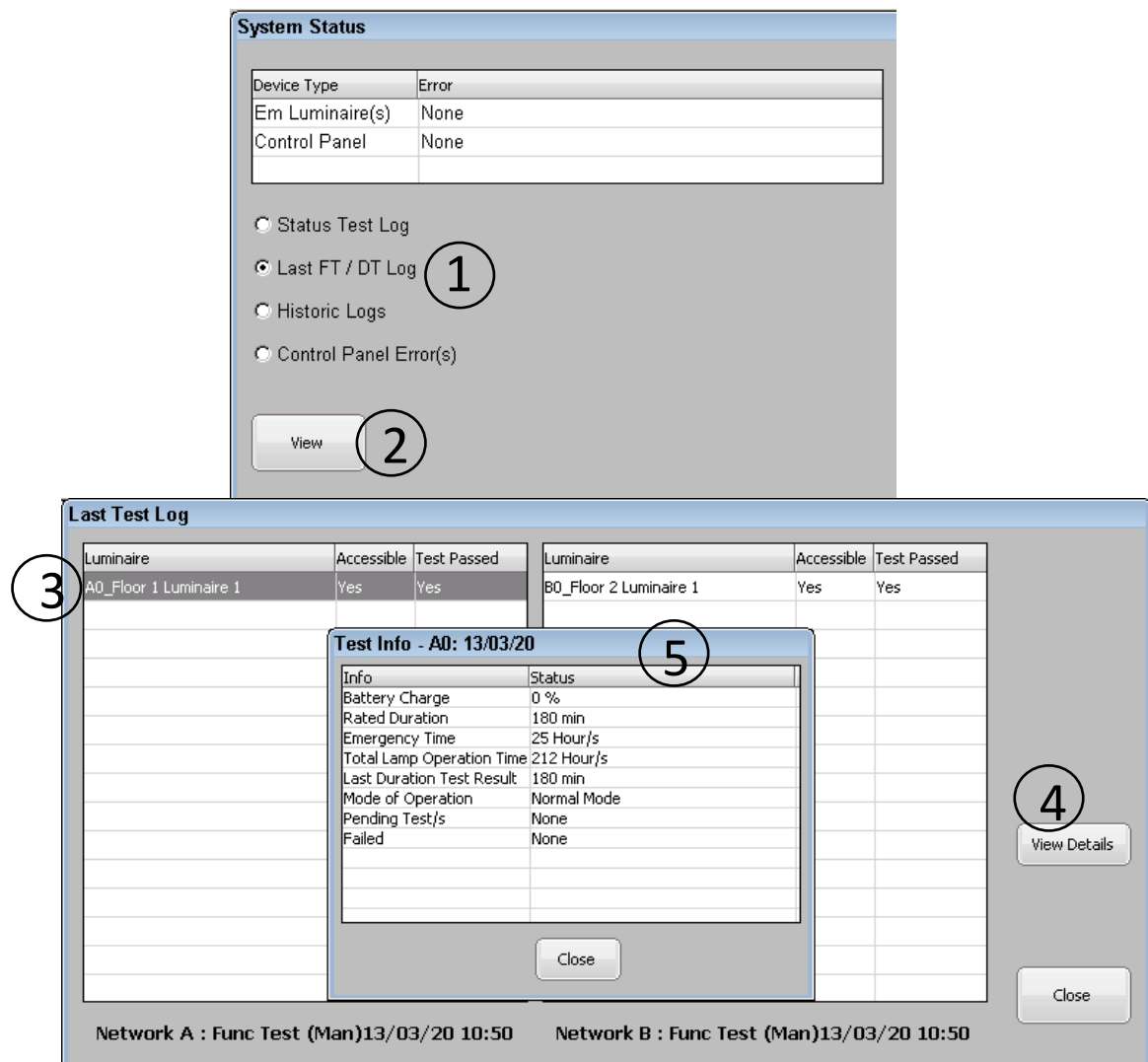


Figure 40 Last Test Results

### 6.1.2. Historic Test Results

A Panel that is loaded with the maximum number of luminaires (128 fittings) can store test 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 41

- Go to "Home Screen" > "Status & logs"
- Select "Historic Logs" option from radio button menu
- Press "View" button to open test log results window  
This will open dialog window listing up to 14 individual past tests with each detailing test type(Function/Duration), test method(Auto/Manual) and the date & time of the test
- To switch between test log of different network, use the provided dropdown menu and select required network (Network A / Network B).
- Use scroll buttons (Older, Newer and Latest) to scroll through historic test logs presented in the list box to get to required test performed at particular date & time.
- To view results of required test highlight the row associated with it in the list box and press "View Log" button on the historic test log window  
This will open test log window listing all the luminaires those were tested while displaying quick snapshot of results.
- To view further details of the luminaire highlight the required luminaire from the provided list of results and press "View Details" button on test log window
- Details of luminaire lists snapshot of various important variables recorded at the end of the test



The image displays a software interface for monitoring system status and test logs. It consists of three main windows: 'System Status', 'Historic Test Logs', and 'Test Log'. A fourth window, 'Test Info - A0: 13/03/20', is overlaid on the 'Test Log' window.

**System Status Window:**

Device Type	Error
Em Luminaire(s)	None
Control Panel	None

Below the table are radio buttons for: Status Test Log, Last FT / DT Log, **Historic Logs** (selected), and Control Panel Error(s). A 'View' button is located below these options.

**Historic Test Logs Window:**

Date/Time(DD/MM/YY HH:MM)	Test Type / Method
13/03/20 10:50	Function Manual

On the right side of this window, there is a 'Network A' dropdown menu, 'Older', 'Newer', and 'Latest' buttons, and a 'View Log' button. An 'Export test logs' section contains radio buttons for 'Currently displayed' (selected) and 'All historic test logs', along with an 'Export Log' button. A 'Close' button is at the bottom right.

**Test Log Window:**

Luminaire	Accessible	Test Passed
A0_Floor 1 Luminaire 1	Yes	Yes

**Test Info - A0: 13/03/20 Window:**

Info	Status
Battery Charge	0 %
Rated Duration	180 min
Emergency Time	25 Hour/s
Total Lamp Operation Time	212 Hour/s
Last Duration Test Result	180 min
Mode of Operation	Normal Mode
Pending Test/s	None
Failed	None

Numbered callouts (1-9) point to specific UI elements: 1 (Historic Logs radio button), 2 (View button), 3 (Network A dropdown), 4 (Newer button), 5 (selected log entry), 6 (View Log button), 7 (Test Log table), 8 (View Details button), and 9 (Test Info window title).

Figure 41 Historic Log Results



## 6.2. 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 "Log\_NWx\_Panel 1\_TestLog 20.xml" will be created in the root directory of the USB flash drive. Where "NWx" represents log for selected network (NWA/NWB), "Panel 1" represents name given to panel and "TestLog 20" represents the year of test log. Each file may contain one or more sheets one for each unique test that had finished at unique time.

To export the required test logs follow the steps as shown in Figure 43

- Go to "Home Screen" > "Status & logs"
- Select "Historic Logs" option from radio button menu
- Press "View" button to open test log results window  
This will open dialog window listing up to 14 individual past tests with each detailing test type(Function/Duration), test method(Auto/Manual) and the date & time of the test
- To switch between test log of different network, use the provided dropdown menu and select required network (Network A / Network B).
- Insert USB Flash drive into USB socket located under front cover of panel as shown in Figure 2
- To export logs only currently listed logs
  - Choose "Currently displayed" option on radio button menu
  - Use scroll buttons (Older, Newer, Latest) to scroll through historic test logs to get to required test log(s)
  - Press "Export Log" button to export test logs
- To export all historic logs for all years
  - Choose "All historic test logs" using the provided radio menu
  - Press "Export Log" button to export test logs
- Confirmation of log export will be shown with a popup dialog

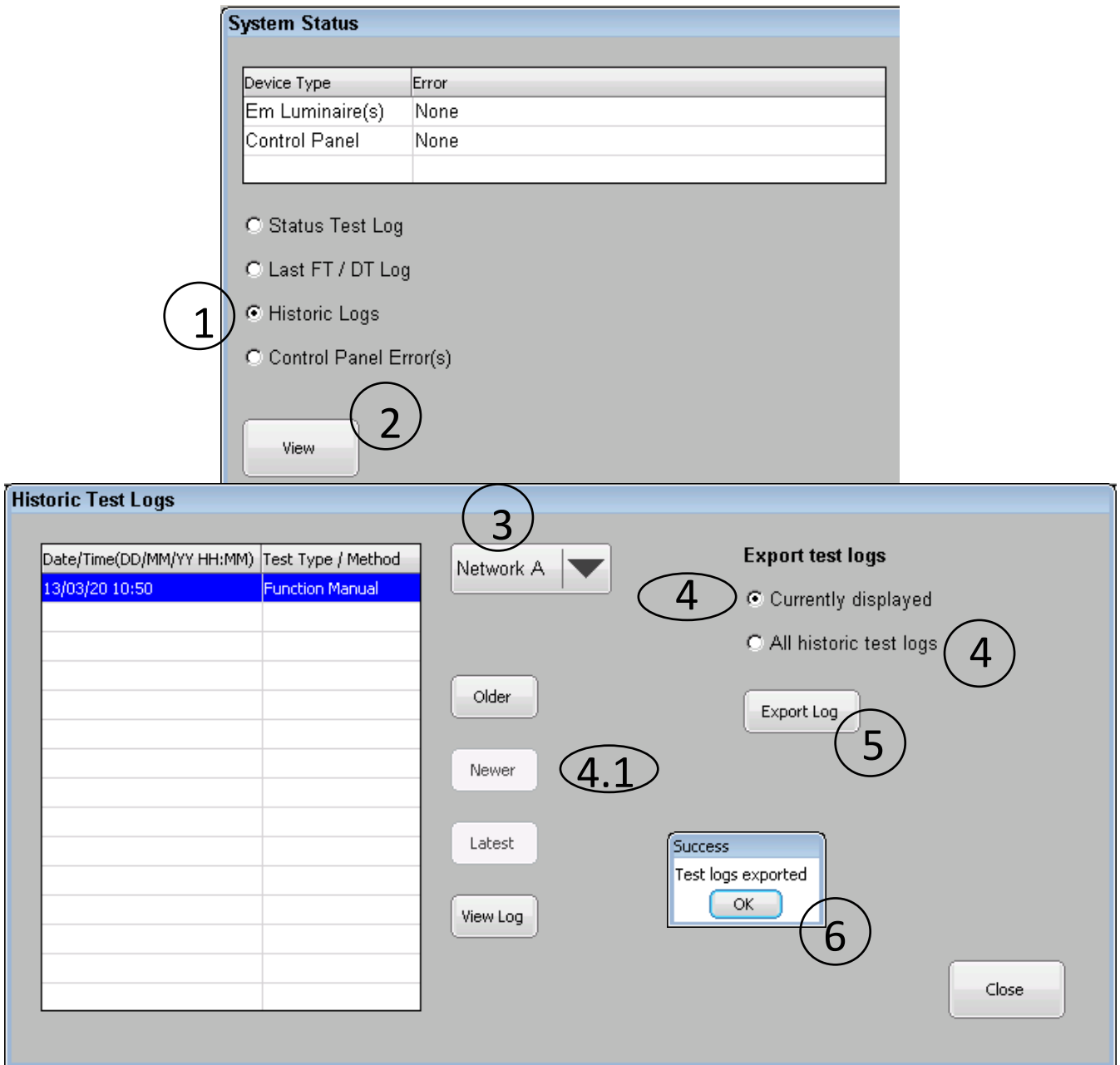


Figure 43 Export Logs to USB Flash

## 7. System Status and Errors

Any errors that the panel encounters are listed in the “System Status” window which can be accessed from “Home screen” as shown in Figure 44. The errors are listed in two categories there are errors for the luminaires and errors associated with the control panel itself. If the status of mesh network and panel is ‘healthy’ then this will be shown on the home screen with a green tick icon. If there is a fault then this will be shown on the home screen with a amber triangle with exclamation mark icon, as shown in Figure 6. The transition from “Healthy” state to “Attention required” state will cause buzzer to be sounded if it is enabled in the “Panel Configuration” window.

System Status		System Status	
Device Type	Error	Device Type	Error
Em Luminaire(s)	None	Em Luminaire(s)	Func test, Dur test, Unreachable, Status test
Control Panel	None	Control Panel	RTC Clock, DT FT Missed, Flash Error,

Figure 44 System 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 1

Error	Error details	Further action to clear error
Function Test (Func test)	Function test from one or more performed test has failed	<p>Scroll through past test logs using “Last FT/DT Log” and/or “Historic Logs” option from “System Status” window as described in section 6.1.1/6.1.2 to find out which luminaire(s) failed function test and perform one or more following steps</p> <ol style="list-style-type: none"> <li>1. Replace faulty battery/lamp for failed luminaire</li> <li>2. Replace faulty em gear / luminaire as described in section 3.3 + 3.4</li> <li>3. Finally reinitiate manual function test on failed luminaire(s) as described in section 5.2.1</li> </ol>

Duration Test (Dur test)	Duration test from one or more performed test has failed	<p>Scroll through past test logs using “Last FT/DT Log” and/or “Historic Logs” option available on “System Status” window as described in section 6.1.1/6.1.2 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. Replace faulty battery/lamp for failed luminaire</li> <li>2. Replace faulty em gear / luminaire as described in section 3.3 + 3.4</li> <li>3. Finally after battery fully charged reinitiate manual duration test for failed luminaire(s) as described in section 5.2.2</li> </ol>
Unreachable	One or more em gear was unreachable during acquisition of test results while performing Function or Duration test	<p>Scroll through past test logs using “Last FT/DT Log” and/or “Historic Logs” option from “System Status” window as described in section 6.1.1/6.1.2 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 Network, Identify, View Status) as described in section 3.5.1 &amp; 4</li> <li>2. Replace faulty em gear / luminaire as described in section 3.3 + 3.4</li> <li>3. Finally reinitiate manual function or duration test as required for unreachable luminaire(s) as described in section 5.2</li> </ol>
Status test	One or more luminaire was unreachable, or battery failure occurred during daily execution of “Status Test”	<p>Scroll through past status test results using “Status Test Log” option available on “System Status” window as described in section 6.1.3 to find out which luminaire/s were unreachable or has its battery failure and perform one or more following steps.</p> <ol style="list-style-type: none"> <li>1. Do connectivity check using commands (Rescan Network, Identify, View Status) as described in section 3.5.1 &amp; 4</li> <li>2. If found faulty/disconnected battery replace/resit battery</li> <li>3. Replace faulty em gear / luminaire as described in section 3.3 + 3.4</li> <li>4. Finally reinitiate manual status test from “Network Config” window as described in section 5.2.3</li> </ol>

Table 1 Luminaire Errors

## 7.2. Control Panel Errors

Control panel errors can occur due to external event like a power failure, backup battery. 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 Error(s)” option from “System Status” window as depicted in Figure 45. Further details and action required remedy error is listed in Table 2

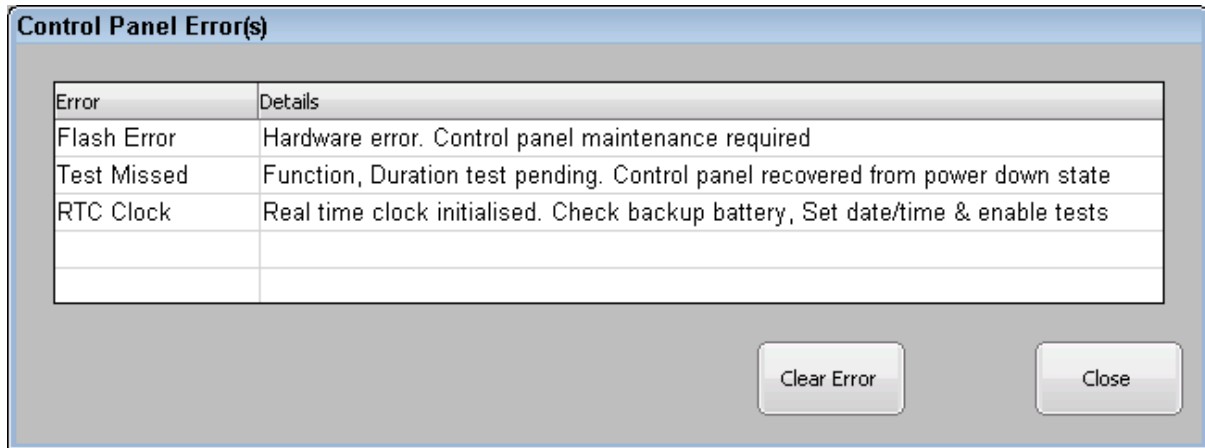


Figure 45 Control Panel Errors

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
Test Missed	One or more scheduled autonomous test missed due to power down of control panel	Missed test will be performed on power up and after finishing test “Test Missed” error will be cleared automatically
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 9.1</li> <li>2. Setup date and time as described in section 2.2</li> <li>3. Clear error after selecting “RTC Clock” from “Control Panel Errors” pop up window and pressing “Clear Error” button shown in Figure 45</li> <li>4. Re enable automatic tests as required as described in section 5.1</li> </ol>

Table 2 Control Panel Errors

## 8. Remote Access

### 8.1. Remote Viewing

The panel can be viewed remotely over a LAN using “VNC Viewer” client, 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 ensure that the external port number is forwarded/mapped by network router to IP address (port 5900) assigned to the panel.

To connect to panel remotely open “Run VNC Viewer” client on the computer as shown in Figure 46

- 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”
- 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

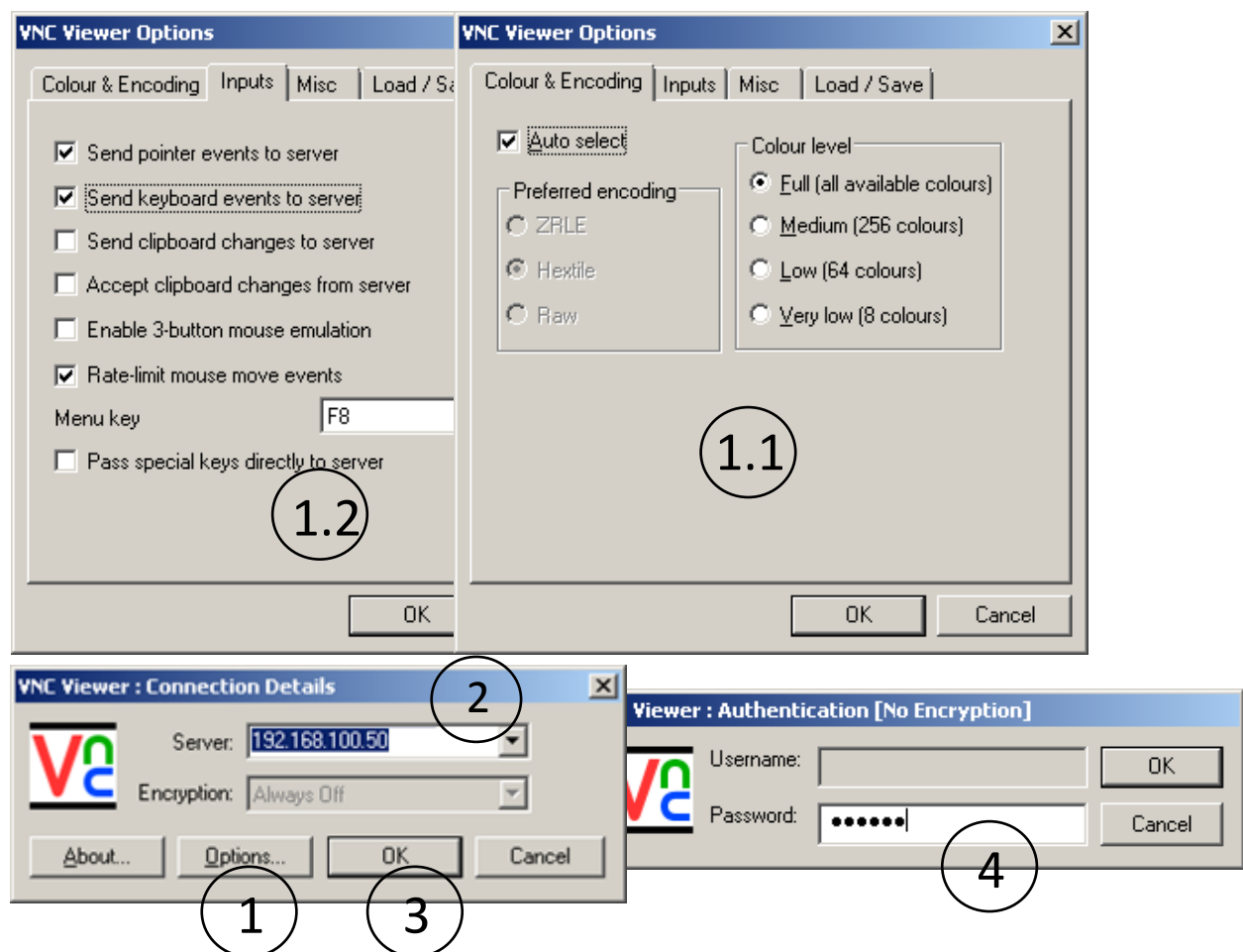


Figure 46 VNC Viewer Connection





Figure 47 Remote Viewing of Panel

## 8.2. Remote Monitoring

Panel has exposed internal data objects through remote monitoring server, which allows to do most of its functions over LAN connection using computer application. For monitoring software / API please contact sales representative or distributor at contact number mention on "Home Screen" in Figure 6

## 9. Panel Maintenance

### 9.1. Changing backup battery

To run the internal real-time clock throughout mains failure panel is fitted with button cell battery CR2032. On 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 48

- Turn off the panel power supply, remove recessed panel from wall socket, disconnect mains connector, 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 48
- Insert flat screwdriver into notch of battery glider and slide it out by levering screwdriver as shown in Figure 48
- 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

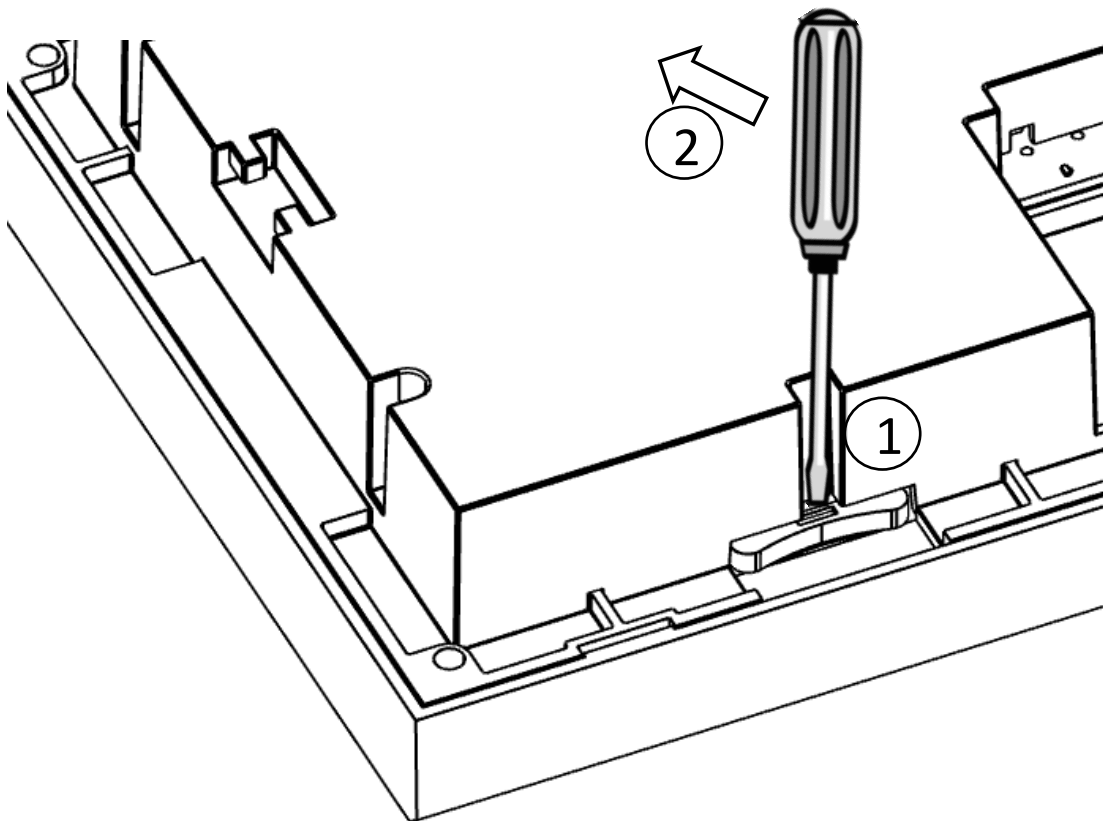


Figure 48 Change Backup Battery

## 9.2. 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 test 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 "SurePath\_BLE\_\*.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 shown in Figure 2
- To start firmware upgrade utility press and hold touch screen of the panel and perform one of following action
  - Power cycle panel while touchscreen being still pressed
  - Simultaneously press/release hardware reset button located near USB socket
- This will boot the panel into bootloader mode as shown in Figure 49
- 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.

```
SurePath BLE Bootloader V1.00  
Please insert USB Flash with following file  
"SurePath_BLE_*.bin"  
To update firmware press Start
```

START

Figure 49 Firmware Upgrade

## 10. Appendix

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

For all commissioned luminaires that exist 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 network 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, 0-9, ' ', '\_' 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 50 File Structure for Importing Name List of Luminaires

## 10.2. 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 51 File Structure for Exporting Name List of Luminaire and DT Selection

### 10.3. BLE Mesh Network

The SurePath BLE system is capable of providing two Bluetooth Low Energy (BLE) mesh networks, and each mesh network is formed during the commissioning of up to 64 BLE DALI gateway nodes located in emergency luminaires that are positioned around a building. The gateway nodes within the mesh network can either communicate directly with the SurePath BLE panel or are able to relay messages that are addressed to other gateway nodes if required. Such a mesh network is shown as below, where each emergency luminaire node is represented by circle communicating back to the controller node which is shown as a SurePath BLE panel.

It is recommended to consider maximum communication distance when the planning the layout of emergency luminaire in a building. If the layout plan does not allow for continuity of the mesh network, it is possible to use a single BLE DALI Gateway as relay only node (i.e. not as part of an emergency luminaire) to bridge the unconnected parts of mesh network.

BLE Mesh network formed by  
1 SurePath BLE + 7 BLE DALI Gateways

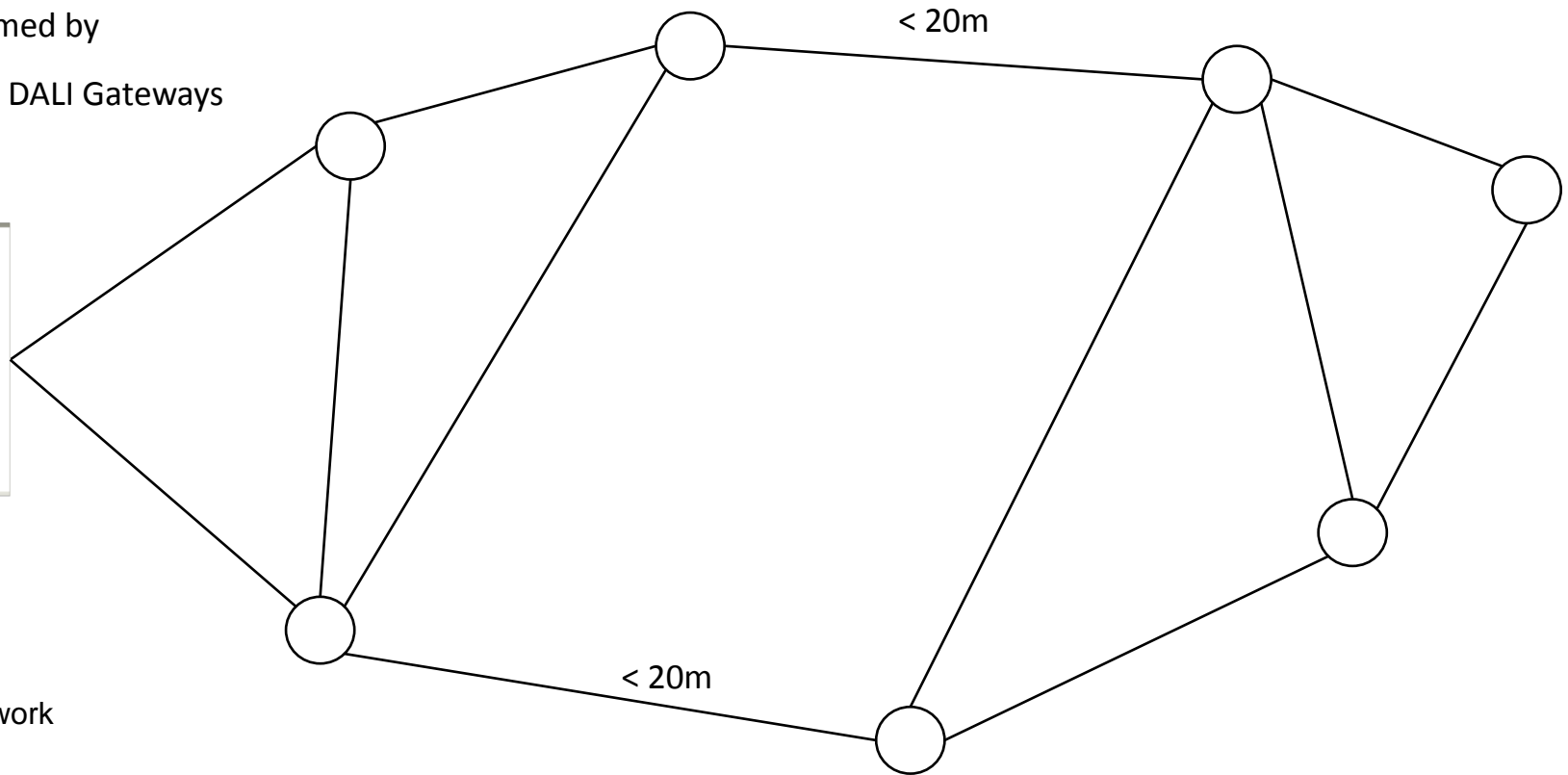


Figure 52 BLE Mesh Network