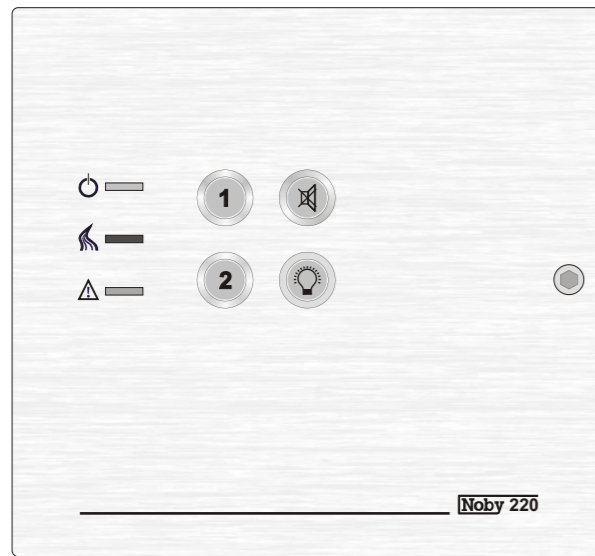


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# Noby 220

## Residential Fire Control Panel



## Installation Instructions

IX-02-142 Rev 2

Please read the following instructions carefully and retain them in a safe place for future reference.

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## Warnings & Cautions



Clean external surfaces with a damp cloth and mild detergent. Do not use abrasives, solvents or polish.



Noby UK have taken every *reasonable* effort to ensure that the stainless steel facia is delivered in pristine condition. Please inspect the facia prior to installing the product as Noby UK cannot accept responsibility for any flaws or scratches incurred whilst installing the product.



This equipment is to be installed, serviced and maintained by a suitably qualified technical person with the requisite knowledge of electrical and fire safety installations.



Take care not to accidentally reverse the SLA battery connections during installation. Fuse F2 will blow, but there is a remote possibility of further damage to the electronic circuitry. Such damage is identifiable to Noby UK and is not covered by the warranty.



The Noby-220 is intended to be permanently connected to the 230V house wiring via a 2A fused spur and in accordance with local wiring regulations.



Part of the internal circuitry operates at 230V and presents an electrical shock hazard. Do not attempt to open, dismantle, repair or tamper with this equipment without first disconnecting the mains supply voltage.



This is Class-1 electrical equipment and must be earthed.



The Noby-220 incorporates fault monitoring of vital safety circuits as required by the EN54 standard. It is important that fault indications are investigated at the earliest by a qualified engineer.

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## Installation and Commissioning

### Where to site the Noby-220

It is intended that the Noby-220 be located in a public space indoors, such as a hallway or landing area, where the LED alarm strobe can be seen and the internal alarm sounder can be clearly heard. Another consideration is to position the panel to make most effective use of the LED courtesy-light, which automatically operates in the event of a power cut.

### Connecting the mains supply

Mains power may be supplied via a permanently wired cable supplied from a 2A fused spur, and in accordance with local wiring regulations. Feed the cable securely either through the cable-entry hole CE2, or via a 20mm cable gland CG3.

Alternatively a flexible mains cord can be fitted with a 2A fused plug, and fed in through CG4 or CG5 using the strain relief bush supplied (suitable for diameters 6.2mm to 7.4mm).

**SAFETY:** strip back the outer sheath of the cable **no more than 25mm** and then strip back each inner core to reveal **6mm bare conductor**. In this way the cable's double insulation is preserved inside the box to within 25mm of the screw terminal block.

**EARTH:** the Noby-220 is designated Class-1 equipment and **must be earthed**. Connect the earth core of the mains cable to the earthing point on the box-back. Note that there is no requirement (and therefore no provision is made) to earth the lid **provided** the mains cores are prepared in the manner described above. Refer to a qualified electrician if there is any doubt concerning electrical safety.

### First power up

It is recommended that the Noby-220 is first powered up with the End Of Line devices still connected to the screw terminal block at the panel, as supplied from the factory. This will help to establish that the panel is functioning OK *before* connecting any external devices.

- Isolate the mains supply.
- Position the battery as shown in Fig.1, with the -ve terminal to the rear of the box.
- Connect the battery terminals **observing strict battery polarity**.
- The panel springs into life with an audible warning beep.
- The absence of mains power causes the green Power LED to flash every 4 secs.
- The LED courtesy-light is automatically activated due to there being no mains power.
- Switch on the mains supply to the panel.
- The Power LED now blinks (occults) every 4 secs, indicating mains-loss memory.
- Perform a **System Reset** (refer to User Operation).
- The panel should now be in standby mode with a steady Power LED and backlight.

### Connecting the detectors

- Up to a maximum of 10 detectors can be connected to each zone.
- There is no restriction on the number of call-points.
- Ensure that the detectors are within specification at 10.5 volts.
- Use detector bases fitted with a schottky diode.
- Connect the detectors and call-points in a straight daisy-chain manner.
- The recommended maximum cable length on each circuit is 100m.
- Maintain strict polarity from the panel, and from one detector to the next.
- Remove & re-connect the factory fitted EOLC at the farthest detector base.

### Connecting the external sounders

- The recommended maximum external sounder circuit current is 200mA. e.g. up to 10 sounders can be connected with a current draw of 20mA each.
- The sounders must be polarised i.e. compatible with conventional fault monitoring.
- Ensure that the sounders are operational down to 10.5V supply voltage.
- Connect the sounders in a straight daisy-chain manner, with no spurs or loops.
- The recommended maximum sounder cable length is 200m.
- Maintain strict polarity from the panel, and from one sounder to the next.
- Remove & re-connect the factory fitted EOLR at the farthest sounder.

### One-man test

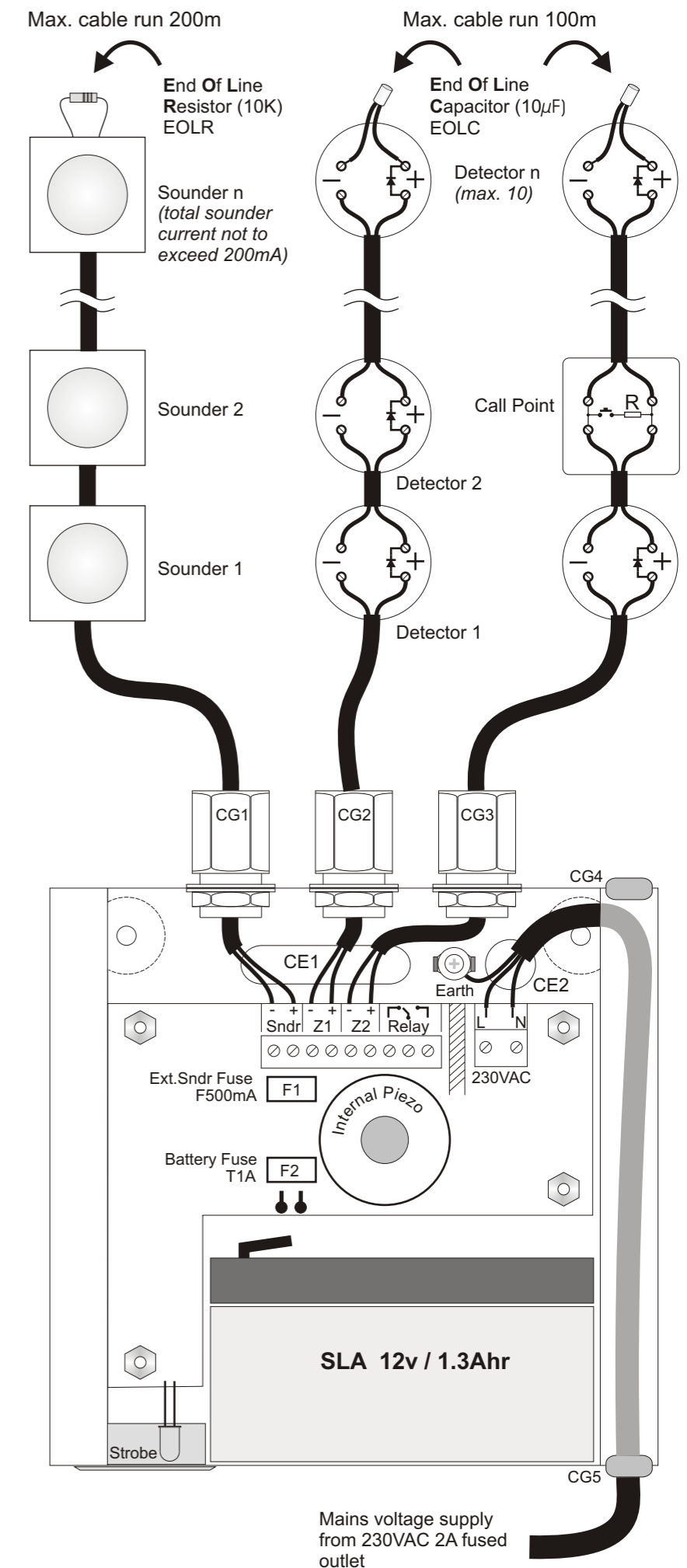
The one-man test is a test facility to aid commissioning and testing of the system, allowing the installer to walk-test the system and trigger each detection device in turn.

- Enter the Engineer Code **1 2 2 1 1** followed by .
- Press either **1** and/or **2** to select the zone for test - toggle on/off.
- The selected zone/s is indicated by a rotating LED patterns on the button.
- You now have 90s to trigger the first device, and 90s thereafter to the next device.
- Each triggered device will pulse the sounders (but not the relay) until the test alarm condition is clear. The panel automatically resets the detectors.
- Press to exit the one-man test mode.

Note: The panel automatically kicks back to normal standby operation if there is 90s of no activity or if there is a *real* fire condition detected on a zone not being tested.

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## Figure 1 System Connections



Mains voltage supply from 230VAC 2A fused outlet

## 5 User Operation

Some functions are accessed by a simple one-touch key operation, whilst other more safety critical functions are accessed via the User Access Code. The acceptance of each key sequence is confirmed with an audible double click. When entering the User Access Code, the green Power LED will flash rapidly for 5 seconds signifying that the panel is ready to accept the Function key.

One-Touch Key	Momentary Press	Press & Hold for 5 secs
	Mute Sounders	Evacuate / Sounder Test activates the sounders & relay
	Courtesy Light : On / Off timed 10 mins if mains OK timed 60 mins if no mains	Courtesy Light On permanently (not self-timed)
1	no action	Disable Zone-1 self-timed 60 mins
2	no action	Disable Zone-2 self-timed 60 mins

User Access Code	Function	Action
1 1 2		<b>System Reset</b>
1 1 2		Evacuate or Sounder Test activates the sounders & relay
1 1 2	1	Disable / Re-enable Zone-1 permanently i.e. not timed
1 1 2	2	Disable / Re-enable Zone-2 permanently i.e. not timed

## 7 Disablement Options

The Noby-220 is supplied as a fully functional fire alarm panel with comprehensive fault monitoring to meet the requirements of the EN54 standard. The following programmable disablement options are provided as a tool to assist the installer in fault finding, such as compatibility issues with 3rd party detectors and sounders. The installer should be aware that the permanent use of these disablement options may have a bearing on the overall safety and approval status of the system. **Any permanent setting of these options is undertaken solely at the risk of the installer.**

With the panel in normal quiescent standby state:

- Enter the 8 digit Engr Code - confirmed by the green Power LED flashing rapidly.
- Enter the appropriate Select key (see table below).
- The LEDs surrounding buttons 1 and 2 indicate the current option status.
- LEDs on = option set; LEDs off = option cleared (factory default).

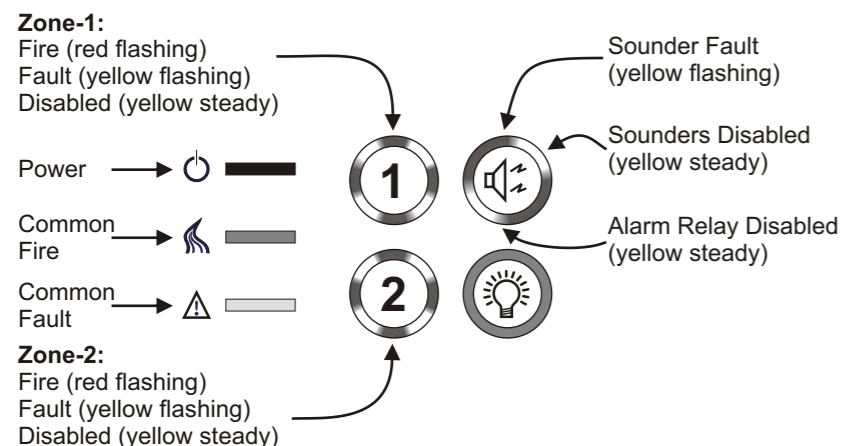
- Toggle button 1 or button 2 as required

- Press to accept the currently displayed status **OR**

- Press to quit without updating the option status.

Engineer Access Code	Select	Toggle	Disablement Option
1 2 2 1 1		1	Disable Ext. Alarm Sounders (internal sounder is softer)
1 2 2 1 1		2	Disable Alarm Relay
1 2 2 1 1	1	1	Disable Detector S/C Faults (s/c zones => fire condition)
1 2 2 1 1	1	2	Disable Detector Head Removal & O/C Fault Monitoring.
1 2 2 1 1	2	1	Disable Battery Fault Monitoring
1 2 2 1 1	2	2	Disable Sounder Circuit Fault Monitoring.

## 6 LED Indications



System LED	Status	Interpretation
POWER (green)	steady on 1 flash / 4s 1 blink / 4s rapid flashing	Mains OK Mains Absent Mains Absent (latched memory) awaiting a pushbutton command
COMMON FIRE (red)	steady on	Fire on Zone-1 and/or Zone-2
COMMON FAULT (yellow)	steady on 1 flash / 4s 2 flash / 4s 3 flash / 4s 4 flash / 4s flashing 2Hz	Common Zone or Sounder fault PSU Low Volts (real time status) PSU Low Volts (latched memory) PSU Battery Capacity Test failed PSU Battery O/C or Fuse F2 CPU Watchdog Fault.

## 8 Panel Behaviour

### Audible Alarms, Faults & Warnings

In the event of a fire alarm the internal piezo sounder emits a loud rapid pulsing tone, and any externally connected sounders are also activated, together with the fire alarm relay. All circuit and system faults are accompanied by a **fault tone** i.e. a double beep every 4 seconds. A **warning tone** is signified by a double beep every 60s and is most likely to occur when there is loss of mains supply or a power-cut lasting longer than 90s.

### Mute

All alarms and fault sounds are silenced by pressing the button.

### System Reset

A System Reset attempts to reset the detector circuits and clear the panel indications. All the panel LEDs are lit during the 3 second reset period. Note that a standing fire or fault condition will immediately re-trigger the alarm after a System Reset.

### Courtesy Light & Power-Cuts

Under normal circumstances the courtesy light can be switched on for a self-timed period of 10 minutes, or switched on permanently by means of the Light button. In the event of a power-cut the courtesy light self-timer is extended to a more useful 60 minutes, and is automatically activated. The light can be manually re-triggered for a further 60 minute period by pressing the button. Note that in the interest of conserving battery power it is not possible to turn the courtesy light on permanently during a power-cut. Also, the blue backlight is automatically disabled to conserve battery power.

### Relay Output - Programmable Option

As supplied from the factory the relay operates as a **Fire Alarm** relay, but can be programmed to serve as a **Fault Output** relay by following the procedure below. (refer to Disablement Options for details on programming)

RelayOption Access Code	Select	Toggle	Relay Option
1 2 1 2 2	2	1	LED off = Fire Alarm LED on = Fault

## 9 Specification

Parameter	Value	Unit	Comment
<b>PSU &amp; Battery</b>			
Mains Supply Voltage	230	VAC	+10% -6% 50Hz/60Hz
Mains Power Rating	3	VA	
Nominal Battery Voltage	12	V	Sealed Lead Acid 1.3Ahr
Regulated PSU Charger	13.68	V	
Fuses F1 Ext.Sndr	500	mA	F500mA Quick Blow
F2 Battery +ve	1.0	A	T1A Slow Blow
Standby Battery Current	7.5	mA	panel only, EOLs fitted
Standby Battery Time	120	Hrs	typical, with healthy battery
Low Voltage Monitor	10.5	V	
Battery Monitor Testing	Yes		
Mains Loss Monitor	Yes		disconnection & capacity off delay=90s; on delay=10s
<b>Detection Circuits</b>			
No. of Detection Circuits	2		
No. of Detectors / Circuit	10		total detector current 1mA/cct.
End Of Line Capacitor EOLC	10	µF	non-polarised
Head Removal Monitoring	Yes		requires schottky diode bases
O/C Fault Monitoring	Yes		
S/C Fault Detection	<120	ohms	
Fire Alarm Detection	120 -1500	ohms	
<b>Sounder Circuits</b>			
Internal Piezo Sounder	>85	dB	measured at 3.3m open field
Fault & Warning Tones	>65	dB	
No. External Sounders	10		based on 20mA per sounder
Max. sndr current available	200	mA	
End Of Line Resistor EOLR	10	Kohms	
Open Circuit Detection	>20	Kohms	
Short Circuit Detection	<5	Kohms	
Fire Alarm Relay	1.0	A	SPDT 1A/30V voltage free
<b>Physical</b>			
Dimensions W x H x D	158x150x50	mm	
Weight	1150	g	

## 10 Troubleshooting

### The green Power LED is not steady

Check that the mains supply is connected and switched on.

### The Common Fault LED will not clear

Refer to the LED Indications to determine the cause of the fault.

The Common Fault indications are listed in order of priority.

### Ooops, I accidentally connected the battery the wrong way round

We've all done it at some time or other! Replace fuse F2 (T1.0A) and try again.

### A detection device generates a fault instead of a fire

Some (older) detectors and call-points are not compatible with modern panels equipped with short circuit fault monitoring. One remedy is to connect a resistor in series with each affected detector head - any value in the region of 400 to 1000 ohms is suitable. Some detector bases allow spare terminals for this purpose. Care must be exercised not to inadvertently insert this resistor in series with the main cable run, as this will lead to other erratic behaviour.

Another work-around is to set the programmable option Disable Detector S/C Fault Monitoring - see Programmable Options. In this case all detector short circuits are interpreted by the panel as a fire condition.

### There's a persistent zone fault that can't be cleared

- Check all the detector heads are both present and securely located to their bases.
- Check base connections, paying particular attention to correct polarity.
- Check that the EOLC is fitted across the final detector.
- Check that the detector bases are of the schottky diode type.
- Programme the option to Disable Detector Head Removal Monitoring - if this clears the fault then the problem is likely to be related to one or more bad detector base/head connections. Note: setting this option also disables o/c monitoring and is therefore not recommended as a permanent fix - the purpose of the option is to help eliminate one possible cause of a fault.
- Failing the above suggestions, it's down to the systematic process of elimination i.e. relocate the EOLC to the first device and disconnect the remaining detectors, then move onto the second device etc.. Repeat until the fault shows up.

### There's a persistent sounder fault that can't be cleared

Check that the sounders are the polarised type and compatible with conventional fire panel fault monitoring. Check the cable connections at each sounder for correct polarity, and that the EOLR is connected across the final sounder.