

# **Noby 448**

## **Fire Control Panel**

### **Installation & Programming Manual**

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## GETTING STARTED

We strongly recommend that the Noby-448 is first powered up with all 4K7 End Of Line resistors fitted **at the panel** as supplied by the factory. In this way you can gain confidence that the panel is operating correctly *before* introducing detector and sounder circuits.

### Power-Up With Battery

- Connect two 12v SLA batteries in series (+'ve to -'ve) to form a 24 volt battery stack, using the battery jumper link supplied.
- Connect the black battery lead to the battery stack -'ve terminal.
- Connect the red battery lead to the battery stack +'ve terminal. It is normal to see a small spark.
- The Common Fault LED will be continuously lit together with flashing PSU and CPU fault LEDs. These faults are also accompanied by an audible fault tone signified by 4 rapid pips every 4 seconds.
- Press **[3][6][3][6] [1][4][5]** to silence and perform a System Reset – observe 3 second LED test.
- The panel should then settle to quiescent state with all LEDs off.
- Connect the mains power supply to the fused screw terminal block
- The panel should now be in a standby state with only the green Power LED continuously lit.

### Power-Up With Mains

- Connect the mains power supply to the fused screw terminal block.  
The green Power LED will be continuously lit.  
The Common Fault LED will be continuously lit together with flashing PSU and CPU fault LEDs.  
These faults are also accompanied by an audible fault tone signified by 4 rapid pips every 4 seconds.
- Connect two 12v SLA batteries in series (+'ve to -'ve) to form a 24 volt battery stack, using the battery jumper link supplied.
- Connect the black battery lead to the battery stack -'ve terminal.
- Connect the red battery lead to the battery stack +'ve terminal. It is normal to see a small spark.
- Press **[3][6][3][6] [1][4][5]** to silence and perform a System Reset – observe 3 second LED test.
- The panel should now be in a standby state with only the green Power LED continuously lit.

### Notes

1. The panel will persist in reporting a PSU fault after a System Reset if the battery is either not present or the battery fuse F7 has blown.
2. Whilst there is a measure of protection against accidental reverse connection of the battery, such action will blow fuse F7 and may cause permanent damage to the panel.

## Installing the Noby-448XT 4-Zone Extender Card (Optional)

- Disconnect the mains & battery power supplies prior to fitting the Noby-448XT.  
**IMPORTANT:** Failure to heed this warning may damage the circuitry.
- Install the Noby-448XT into the cabinet using the 3 mounting pillars supplied.
- Connect the Noby-448XT to the Noby-448 Main PCB using the 10-way ribbon cable.
- All zone and sounder circuits must be terminated with a 4K7 EOL resistor (supplied).
- Restore the mains and battery power supplies to the panel.
- **FINALLY** . . . you must configure the panel software to recognise the Noby-448XT:
  - Key **[6][2][5][3] [3][5]** to enter programming mode.
  - Key **[1]** to **Toggle** the option - the yellow zone fault LED's display the active zones.
  - Key **[4]** to **Accept** and update the configuration option to E2PROM memory.
  - Key **[5]** to **Quit** and revert back to normal standby mode without updating the E2PROM.

## POWER SUPPLY

The PSU comprises two high-efficiency regulators providing voltage rails of 27.3v and 13.6v (nominal 24v and 12v respectively), with a combined continuous current rating of 2.0A, and a 20 minute rating of 2.5A. The PSU is designed to meet the internal standby power requirements of the Noby-448 and also to charge and maintain the SLA standby battery in optimum condition. The battery standby time is dependant upon the overall system current drawn, including any ancillary equipment connected to the Aux 24v and Aux 12v terminals. Also it is strongly recommended that the continuous system standby current does not exceed 1.5A, because some 'reserve' PSU current may at times be required to rapidly re-charge the battery (e.g. after an alarm condition or prolonged period of mains loss).

The Noby-448 enclosure can accommodate two 12v/7Ahr SLAs connected in series. The PSU is capable of handling batteries up to 12Ahr, but these larger batteries must of course be housed in a separate enclosure. Care must be taken when planning an installation that there is sufficient battery capacity to meet the relevant standards regarding battery standby times.

Always ensure that the maximum current drawn in alarm does not exceed the 3.0A battery fuse limit (F7).

The PSU is monitored for :

- |      |                             |   |
|------|-----------------------------|---|
| i)   | Mains Absence               | Power LED extinguishes when mains absent for more than 90 seconds and flashes once mains restored. Mains absence is accompanied by an intermittent warning bleep every 16s (mutable). |
| ii)  | Low Voltage < 21v           | PSU Fault LED continuously lit whilst voltage < 21v and flashes when voltage is restored to > 23v   |
| iv)  | Battery Capacity Test       | PSU Fault LED flashes   |
| iii) | Fuse F7 (Battery/Low Volts) | PSU Fault LED flashes   |
| v)   | Fuse F1 (Remote/Aux 12v)    | PSU Fault LED flashes   |
| vi)  | Fuse F2 (Aux-24v)           | PSU Fault LED flashes   |

Note 1: PSU faults are accompanied by a fault tone signified by 4 rapid pips every 4 seconds.

Note 2: The Battery Capacity Test is performed immediately after a System Reset and thereafter at 12 hour intervals.

## REMOTE KEYPAD BUS

Up to three external **Noby-448RKP** remote keypads can be connected to the remote serial bus.

Ensure correct connectivity A to A and B to B.

Each Noby-448RKP must be set to a unique dip-switch address in the range 2 to 4 (the factory setting is address 2). Note that address 1 is reserved for the internal lid mounted keypad on the Noby-448.

Take care when installing a 3<sup>rd</sup> or 4<sup>th</sup> keypad to adjust the address switch to 3 or 4.

Note that the system is tolerant of address gaps i.e. it is OK to have addresses 1,2 and 4, but address conflicts will give rise to spurious keystroke entry.

The bus address configuration is registered at first power-up and again every time the panel is reset.

Any loss of communication is indicated by a *continuously* lit CPU Fault LED, together with an audible fault warning from any remaining functional keypads. There is also a 'backup' piezo sounder on the main PCB to draw attention to a bus fault. In the event of complete remote bus failure the panel will fail safe and continue to operate as a fire detection system, albeit without the means to silence it. The fuse F1 supplying the Remote Bus is monitored and will generate a simultaneous PSU Fault and CPU Fault condition if it should blow.

The maximum cable length is largely determined by the type of cable employed and the installation environment. The remote keypads can be wired and distributed along the cable in any configuration provided the *total* cable length connected does not exceed 500m.

**Important:** the main precaution is to minimise the volt drop along the 12v and 0v supply cores by using thicker wire or doubling up the spare cores. In normal standby, with only the Power LED lit, the terminal voltage *at each remote* should be 12v or higher (as compared to approx.13.6v at the panel terminals). When troubleshooting, a good rule of thumb is that the voltage at the remote keypads must not drop below 10v at maximum current draw during the 3 second reset period - i.e. this is the maximum current draw when all LEDs are lit.

Failure to heed this warning may give rise to intermittent and/or unreliable remote keypad operation.

## INPUTS

### Zone Detector Circuits

The Noby-448 requires that each detector zone is terminated with a 4k7 End Of Line resistor. This EOL resistor is necessary to facilitate open circuit, short circuit and head removal monitoring. The total current drawn by the detectors on each circuit must not exceed 2mA, which means that 20 detectors can be connected to each zone (based on a typical 100uA maximum per detector). Similarly, if the detectors are specified at 50uA maximum current draw, then 40 detectors per zone can be connected.

### Class Change Input (Bell Ring)

A positive going input signal to switch on the sounders directly (subject to their isolation status). The input is non-latching and no indication is given on the display.

### Fault Input

A signal input from connected ancillary equipment eg. remote signalling equipment, which causes the Common Fault LED to flash when activated. The polarity of the Fault\_Input signal is programmable (software version 1-8 onwards). The factory setting is for a positive voltage-applied, which requires no external connection to hold off the fault indication, which is preferable if the input is not used. However, when connecting a fault signal fed back from remote equipment it is recommended to use a voltage-removed signal for added safety. In this case the Noby-448 fault input polarity should be configured to be normally high, going low to initiate a fault condition. See Engineer Keypad Functions.

## OUTPUTS

### Sounder Circuits

Conventional 4k7 End Of Line resistor monitoring requiring polarised bells or sounders with a combined output current of 1.25A across the 4 sounder ports. The Noby-448XT 4-Zone Extender provides an additional 4 sounder ports with a 1.25A combined output current. Each sounder circuit is individually fused and monitored.

### Fire Relay Output

Double pole voltage free contacts, 1A@30V, activated upon detection of a zone fire or by the keypad operated Evacuate function. It is latched until a System Reset. The relay can be isolated - see User Keypad Functions / Isolation. The Fire Relay Output is *not* triggered by the Bell Ring Input or from any activation of a zone that has been programmed as a non-latching zone.

### Panel Sounder (Piezo)

A piezo sounder is located at each Remote Keypad Unit to provide for local keypad 'clicks', fire and fault warning tones. Fire tone = continuous rapid pips. Fault tone = 4 rapid pips every 4 secs. There is an additional piezo sounder fitted to the main PCB to provide an audible fault warning in the unlikely event of Remote Bus failure (damaged cable etc.).

### Aux 12v

A 12v auxiliary supply fused at 1A (Fuse F1), monitored.

### Aux 24v

A 27.3v (nominal 24v) auxiliary supply fused at 1A (Fuse F2), monitored.

### Communication Port (JP1)

JP1/1 to JP1/8 ("Z1" to "Z8") are positive going 12v/10mA signal outputs, latched on receipt of a fire alarm condition, cleared upon System Reset. These signal outputs are sufficient to trigger remote signalling equipment, or perhaps drive a mimic LED display.

JP1/9 ("Flt") is a **Fault Output** \*\* and signals real-time status of System Faults from all sources. It is an open collector PNP 12v/50mA, normally switched to 12v, switched off (released) if there is a standing fault.

JP1/10 ("0") is 0 volts or system common ground.

\*\* **NOTE:** The **Fault Output** signal is also made available on the screw terminal marked "FAULT". This applies to circuit board PC146-3 onwards (Revision 3).

## USER KEYPAD FUNCTIONS

### General

Each of the following functions must be preceded by the Access Code which is fixed at [3][6][3][6]. Successful entry of the Access Code is confirmed by the red Function LED. Pressing [5] to **Quit** at any time will cause the system to revert back to normal standby mode, otherwise the system will automatically revert back after 10 seconds of inactivity.

**Mute Sounders** [3][6][3][6] [1]  
Main external sounders switched off.

**Mute Panel** [3][6][3][6] [4]  
Panel internal sounders (piezos) switched off.

**System Reset** [3][6][3][6] [5]  
All LEDs are tested for 3 seconds.

**Quick Reset** [3][6][3][6] [1] [4] [5]  
A Quick Reset is an amalgamation of the first three operations above.  
Note that the Main Sounders & Panel Sounder **MUST** be individually muted before a reset can be accepted.  
Reset is acknowledged by a 3 second LED test.

**Evacuate** [3][6][3][6] [2]  
The main external and panel internal sounders are switched on. The Fire Alarm Relay is activated.

**Zone\_Isolate & Relay\_Isolate** [3][6][3][6] [3]  
This function is used to Isolate zones and/or the Fire Alarm Relay.  
The current isolation status is displayed by any flashing yellow zone LED's and/or the Relay\_Isolate LED.  
Note that scrolling down automatically wipes any pre-existing isolation status LEDs, and that it is therefore advisable to check the whole isolation suite prior to exiting this procedure.  
Key [1] to **Scroll-Down** and highlight the desired yellow zone LED (or the Relay\_Isolate LED) for selection.  
Key [3] to **Toggle** the selected zone (or the relay) on or off – the LED flashes when isolation is active.  
Key [4] to **Accept** and update the current isolation status and then revert back to normal standby mode . . .OR  
Key [5] to **Quit** and revert back to normal standby mode without updating the displayed isolation status.

Once back in normal standby mode any isolated zone (or relay) is confirmed by a flashing zone fault LED (and/or Relay\_Isolate LED). Zone\_Isolate and/or Relay\_Isolate operations should only be performed or authorised by the Installation / Service Company).

**Test** [3][6][3][6] [6]  
This function is used to 'one-man' test the system.  
Key [1] to **Scroll-Down** and highlight the zone for test.  
Key [6] to **Toggle** the zone selected for test on or off – the yellow zone LED will flash when in test mode.  
It is now possible to trigger each detector in turn on the selected zone.  
The sounders are activated momentarily (provided they are not isolated) and the Zone Fire LED is latched.  
The Fire Alarm Relay is not activated.  
Key [5] to **Quit** to revert back to normal standby mode.

The system will revert back to normal standby mode after 90 seconds of panel inactivity (i.e. no keypad operations or zone activations). Any fire alarm generated from a non-test zone will cause the system to abort the test and give the appropriate fire response.

## ENGINEER KEYPAD FUNCTIONS

### General

Pressing [5] to **Quit** at any time will cause the system to revert back to normal standby mode, otherwise the system will automatically revert back (kickback) after 10 seconds of inactivity.

### Isolate Sounders

[6][2][5][3] [3][1]

This function is used to isolate the main sounders. The panel piezo sounder is unaffected.

Key [3] to **Isolate** the sounders - a toggle on/off action.

Key [4] to **Accept** and update and then revert back to normal standby mode.

Key [5] to **Quit** and revert back to normal standby mode without updating the Sounder Isolate status.

The sounder isolation status is confirmed by a flashing Sounder Fault LED.

### 8 Event Log Recall

[6][2][5][3] [6][1]

This function is used to recall and view the previous 8 fire activations.

Key [1] to **Scroll Down** or rather *scroll back* through the last 8 events - and then revert back to standby.

Key [2] to **Accept**, clear the log memory and then revert back to normal standby mode..

Key [5] to **Quit** and revert back to normal standby mode without clearing the log memory.

Note : the log records a snapshot of the zone fire LED's at the instant the panel is Reset.

### Configure Noby-448XT 4-Zone Extender

[6][2][5][3] [3][5]

This function is used to upgrade the software to recognise 8 zones.

Key [1] to **Toggle** the option - the zone fault LED's display the active zones.

Key [4] to **Accept** and update the configuration option to E2PROM - then revert back to normal standby mode..

Key [5] to **Quit** and revert back to normal standby mode without updating the E2PROM.

### Configure Fault\_Input Polarity

[6][2][5][3] [3][5]

This option configures the Fault\_Input signal to be normally high, going low to initiate a fault condition.

Key [2] to **Toggle** the option - the Common Fault LED indicates the current option status.

Key [4] to **Accept** and update the configuration option to E2PROM . . . OR

Key [5] to **Quit** and revert back to normal standby mode without updating the E2PROM.

The factory default is with the option disabled i.e. the Fault\_Input is normally low, going high to initiate a fault condition.

### Configure Latching Zone Faults

[6][2][5][3] [3][5]

This function is used to configure latching zone faults.

Key [3] to **Toggle** the option - the Isolate LED displays the current option status.

Key [4] to **Accept** and update the configuration option to E2PROM - then revert back to normal standby mode..

Key [5] to **Quit** and revert back to normal standby mode without updating the E2PROM.

The factory default is with the LZF option disabled – i.e. non latching zone faults.

### Weekly Test Reminder

[6][2][5][3] [3][5]

This function is used to enable / disable the Weekly Test Reminder function.

Key [6] to **Toggle** the option - the Test LED display the current option status.

Key [4] to **Accept** and update the configuration option to E2PROM - then revert back to normal standby mode..

Key [5] to **Quit** and revert back to normal standby mode without updating the E2PROM.

The factory default is with the WTR option disabled. Once enabled the WTR will cause the Test LED to flash accompanied by an intermittent warning sound (mutable) after 1 week of no fire activity on the panel. The timer is automatically reset after a fire condition has been generated and subsequently cleared (i.e. a manual test cycle).

### Configure Non-Latching Zones

[6][2][5][3] [3][2]

This function is used to programme any of the 8 zones to be non-latching.

Key [1] to **Scroll-Down** and highlight the zone for selection.

Key [3] to **Select** a particular zone.

Key [4] to **Accept** and update the non-latching status to E2PROM and then revert back to normal operating mode.

Key [5] to **Quit** and revert back to normal standby mode without updating the E2PROM.

Note: A non-latching zone will momentarily activate the sounders (subject to their isolation status), panel sounder, and also display momentary indication on the appropriate zone fire LED. Non-latching events are not logged.

### Sounder Fault Identification

[6][2][5][3] [1][1]

This function is used to identify which sounder circuit is in fault condition. The sounder circuit in fault is indicated by means of the yellow zone fault LEDs 1 thru 8.

Key [5] to **Quit** and revert back to normal standby mode without updating the E2PROM.

## TROUBLESHOOTING

### Power Supply

#### ***The Power LED not illuminated?***

- Check that the mains supply is connected and switched on.
- Check the fuse in the terminal block adjacent to the transformer.
- Check the fuse F8 on the main board.

#### ***PSU Fault LED continuously illuminated?***

- The panel is detecting low voltage (< 21V) from the batteries.
- Check the batteries are connected correctly, in series, and observing strict polarity.
- The batteries may be heavily discharged – allow approx. 1hr for a partial re-charge.  
The PSU Fault LED will flash when the battery voltage increases to 23V.  
The PSU Fault will clear when the panel is reset.
- The batteries may be faulty – replace as necessary.

#### ***PSU Fault LED flashing?***

- Check the batteries are connected correctly, in series, and observing strict polarity.
- Check Fuse F7 (Battery).
- Check Fuse F1 (Ext. Remote / and Aux 12V ).
- Check Fuse F2 (Aux 24V).

### Zone Faults

#### ***Zone Fault LED continuously illuminated?***

- Disconnect the relevant zone and replace with the EOL resistor (4K7) at the zone terminal. If the fault can now be cleared then there is a possible wiring error in the zone.
- Check that the correct value EOL resistor is fitted at the end of the zone.
- Check that the wiring and connections at each detector are consistent, and not crossed-over at any point along the cable run.
- Check that all manual call-points in the zone are intact and fitted with an appropriate EOL resistor, typically 470 ohms.
- If a Zone Fault LED becomes continuously illuminated when a head is removed, then that detector base may be the wrong type. Check that a schottky diode is fitted and correctly connected.  
Replace the suspect detector base if necessary.

#### ***Zone Fault LEDs Flashing?***

- One or more zones are isolated.

#### ***Zone Fault LED intermittently winking?***

- A detector head is either missing or incorrectly connected.
- Check all detector heads on the corresponding zone are fully seated in their bases.

### Sounder Faults

#### ***Sounder Fault LED continuously illuminated?***

- Enter the code [6][2][5][3][1][1] to bring up the sounder fault display, shown by the zone fault LEDs.
- Check the corresponding sounder fuses F3, F4, F5 or F6 on the main board, or fuses F1, F2, F3 or F4 on the Noby-448XT extender board (if fitted).
- Disconnect the suspect sounder circuit and fit a 4K7 EOL resistor at the sounder terminal. If the sounder fault clears then there is a possible wiring fault in the circuit. Check all connections between sounders.
- Check that the correct value 4K7 EOL resistor is fitted in the circuit.

### Zones 5 to 8

#### ***Continuous Zone Faults And Sounder Faults?***

- If the Noby-448XT module is fitted then check that the 10-way ribbon cable connector is secure.
- If the Noby-448XT module is not fitted, then ensure that the programmable option 'Configure Noby-448XT 4-Zone Extender' is set to de-activate zones 5 to 8.

#### ***Zones 5 to 8 Don't Work At All?***

- The Noby-448XT module is not fitted, or the ribbon cable not connected.
- The programmable option 'Configure Noby-448XT 4-Zone Extender' is not set.

## CPU Fault Indication

### ***CPU Fault LED Continuous?***

- It is possible one or more display boards have had their address changed. Reset the panel to reconfigure for the address changes.
- If there have been no address changes then one or more remotes have failed to communicate to the main board. Check the wiring between all remotes that do not appear to be working.

### ***CPU Fault Flashing?***

- It is normal behaviour to see a CPU Fault at power-up . Clear by performing a panel reset.
- Persistent CPU faults may indicate interference from electrical machinery or RF transmitters in the locality.

## Common Fault Indication

### ***Common Fault LED Flashing persistently?***

- Check that the Fault\_Input polarity is correctly programmed (Engineer Keypad Functions), and that the Fault\_Input terminal, if used, is in the required state to hold-off the Common Fault LED. Note that the Fault\_Input Polarity option should be disabled (factory default) if the Fault Input terminal is unused or not connected to remote equipment.

## Alarm Relay

### ***Alarm relay not working?***

- Check that the relay is not isolated.

## User Keypad Operation

### ***Reset command [3][6][3][6] [5] is ignored – nothing happens?***

- Both the external sounders and internal panel piezo sounder must first be muted *before* the reset button is acknowledged. This can be performed in one operation by performing a Quick Reset [3][6][3][6] [1][4][5].

## Noby-448RKP Remote Keypads

### ***Keypad operation is intermittent (where 1 or more Noby-448RKP fitted)?***

- Refer to the section 'Remote Keypad Bus' (page 3), in particular:
  - Check that the DC supply voltage at each Noby-448RKP exceeds 12.0 volts in normal standby operation, and 10.0 volts during the 3 second Reset phase (all LED's illuminated).
  - Check that no two devices have the same address.
  - Check that the total cable length connected to the data pair (A & B) does not exceed 500m.

### ***Random flashing LEDs on the main panel?***

- Check for correct wiring throughout the remote data bus i.e. A to A and B to B.

## Diagnostic Tool – System Faults & Alarm Disable Switches

It is possible to selectively disable the monitoring and detection functions of the Noby-448. This feature is a diagnostic tool to assist in identifying the possible cause of spurious faults and alarms.

**IMPORTANT:** The permanent activation of these Disable Switches may violate EN54 and/or BS5839.

From normal quiescent standby:

Enter an 8 digit access code **[3] [3] [5] [1] [4] [2] [6] [3]** (the red Function light confirms acceptance).

The current status of the Disable Switches are displayed by the yellow Zone LEDs :

- 1 = Battery Capacity and Low Volts Monitor
- 2 = Head Removal Monitor (all zones)
- 3 = Zone Fire Detection (all zones)
- 4 = Zone Fault Monitor O/C (all zones)
- 5 = Zone Fault Monitor S/C (all zones)
- 6 = Sounder Fault Monitor O/C (all sounders)
- 7 = Sounder Fault Monitor S/C (all sounders)
- 8 = Not Used

Press **[1]** to scroll down to the required option bit – red LED's used as a pointer.

Press **[6]** to toggle the option bit on/off as required – yellow LED's used to indicate the status.

Press **[4]** to confirm the selection and return to normal quiescent standby.

- Or -

Press **[5]** to quit without updating and return to normal quiescent standby.



## NOBY-448 SPECIFICATION

<b>Power Supply Unit</b>	<b>Value</b>	<b>Unit</b>	<b>Comments</b>
Mains Supply Voltage	230 +10% -6%	volts AC	
Mains Supply Frequency	50 / 60	Hz	
Mains Power Rating	60	VA	
Nominal Battery Voltage	24	volts	
Regulated PSU charger voltage	27.3	volts	
Regulated PSU charger current			
• 20 minute rating	2.5	A	
• continuous	2.0	A	
Fused Outputs:			
F1 Ext. Remote Bus & Aux 12v	1.0	A	F1A 20mm Quick Blow
F2 Aux 24v	1.0	A	F1A 20mm Quick Blow
F3 Sounder 1 Circuit	1.0	A	F1A 20mm Quick Blow
F4 Sounder 2 Circuit	1.0	A	F1A 20mm Quick Blow
F5 Sounder 3 Circuit	1.0	A	F1A 20mm Quick Blow
F6 Sounder 4 Circuit	1.0	A	F1A 20mm Quick Blow
F7 Battery +ve	3.0	A	T3A 20mm Slow Blow
F8 30VAC Transformer Secondary	3.0	A	T3A 20mm Slow Blow
Standby Battery Current:			
• Noby-448 4 zone main panel	70	mA	4 zone + 4 sndr EOL resistors fitted
• Noby-448 4+4 (Noby-448XT fitted)	105	mA	8 zone + 8 sndr EOL resistors fitted
• RKP Remote	25	mA	all LED's off
Low Voltage Monitor	21.0	volts	
Battery Capacity Monitor	Yes		10s load test every 12hrs

<b>Zone Circuits</b>	<b>Value</b>	<b>Unit</b>	<b>Comments</b>
Detection Zones:			
• Noby-448	4		
• Noby-448 + Noby448XT module	8		
No. Detectors Per Zone	20		based on 100uA per detector
End Of Line (EOL) Resistor	4700	ohms	
Open Circuit Monitoring	R > 10,000	ohms	
Short Circuit Monitoring	R < 100	ohms	
Fire Alarm Detection	100 < R < 1600	ohms	
Head Removal Monitoring	Yes		<ul style="list-style-type: none"> <li>• requires schottky diode bases</li> <li>• sampled at 60s intervals</li> </ul>

<b>Sounder Circuits</b>	<b>Value</b>	<b>Unit</b>	<b>Comments</b>
Sounder Circuits:			
• Noby-448	4		
• Noby-448 + Noby448XT module	8		
Maximum No. Sounders Per Circuit	50		based on 20mA per sounder
Maximum No. Sounders – All Circuits:			
• Noby-448	62		based on 20mA per sounder
• Noby-448 + Noby448XT module	124		based on 20mA per sounder
End Of Line (EOL) Resistor	4700	ohms	
Open Circuit Monitoring	> 10,000	ohms	
Short Circuit Monitoring	< 100	ohms	
Fire Alarm DPDT Relay	1.0	A	rated at 1.0A/30Vdc per contact set

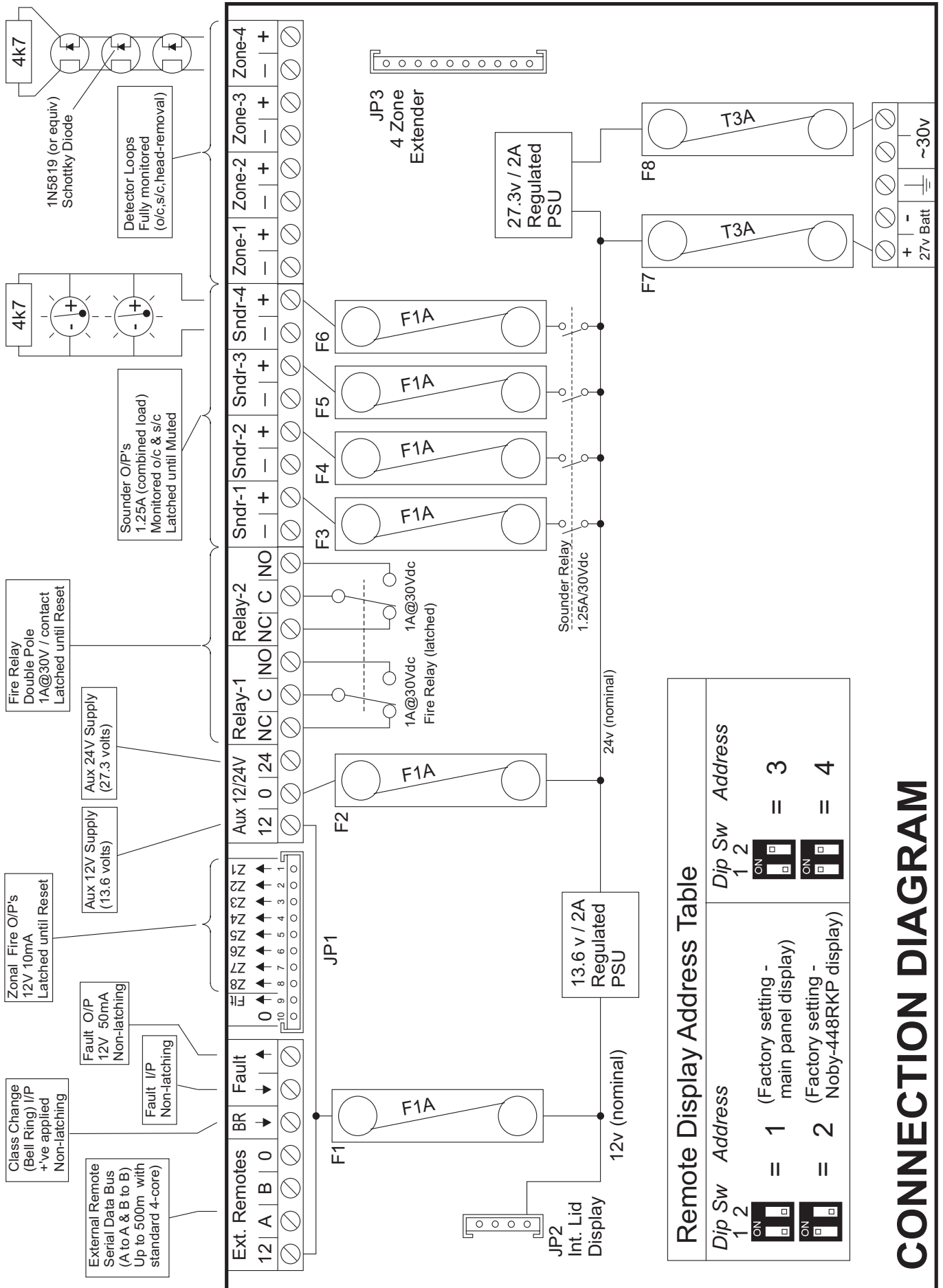
<b>Communication Port (JP1)</b>	<b>Value</b>	<b>Unit</b>	<b>Comments</b>
Zonal Outputs (JP1 pins 1 – 8)	10	mA	12volt +’ve going signal
Fault Output (JP1 pin 9)	50	mA	12volt open collector, +’ve going

<b>Signal Inputs</b>	<b>Value</b>	<b>Unit</b>	<b>Comments</b>
Class Change (Bell Ring “BR”)	200	kohm	12volt +’ve going signal (max 30v)
Fault Input (“Fit”)	200	kohm	12volt +’ve going signal (max 30v)

<b>Cabinet</b>	<b>Value</b>	<b>Unit</b>	<b>Comments</b>
Dimensions (width x height x depth):			
• Main Panel	335 x 325 x 75	mm	1.2mm powder coated steel
• Noby-448RKP Remote Keypad	220 x 110 x 55	mm	1.2mm powder coated steel
Shipping Weight:			
• Main Panel	4.7	kg	
• Noby-448RKP Remote Keypad	875	g	

<b>LED Indications</b>	<b>Continuous</b>	<b>Flashing</b>
8 Zone Fire LED’s	Zones alarmed	First to alarm
Common Fire LED	One or more zones in fire condition	N/A
Zone Fault LED’s (non-latching) **	Zone/s in fault	Zone/s isolated (slow flash) Head Removed (intermittent ‘winking’)
Common Fault LED	Any zone fault or system fault	Fault Input terminal active, non-latching
Sounder Fault LED	Sounder fault	Sounders Isolated
PSU Fault LED	Low voltage (< 21 volts), non-latching	Fuses F1,F2,F7, Low volts & Battery
CPU Fault LED	Remote Bus fault	CPU watchdog warning
Power LED	Primary supply (mains) OK. Off=mains fail	Mains restored
Relay Isolate LED	N/A	Relay isolated
Function LED	Access code successfully entered	N/A
Isolate LED	N/A	One or more zones isolated
Test LED	N/A	7 day fire test reminder

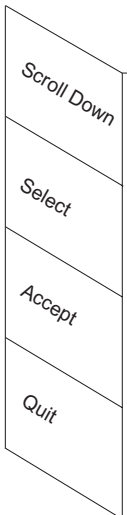
\*\* Zone Faults are non-latching as supplied from the factory. Latching function is a programmable option.



# CONNECTION DIAGRAM

# KEYPAD FUNCTIONS

Secondary Function Keys (Programming)



USER FUNCTION	4 Digit Access Code	Function LED	Function Key
Mute Sounders	ISOLATE 3, TEST 6, ISOLATE 3, TEST 6	☀️	MUTE SNDRS 1 1
Mute Panel	ISOLATE 3, TEST 6, ISOLATE 3, TEST 6	☀️	MUTE PANEL X 4
System Reset	ISOLATE 3, TEST 6, ISOLATE 3, TEST 6	☀️	RESET X 5
Evacuate	ISOLATE 3, TEST 6, ISOLATE 3, TEST 6	☀️	EVACUATE 2
Isolate Zone or Relay	ISOLATE 3, TEST 6, ISOLATE 3, TEST 6	☀️	ISOLATE 3
Test	ISOLATE 3, TEST 6, ISOLATE 3, TEST 6	☀️	TEST 6

## ENGINEER FUNCTION

ENGINEER FUNCTION	6 Digit Access Code	Function LED
Isolate Sounders	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, ISOLATE 3, MUTE SNDRS 1 1	☀️
8 Event Log Recall	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, TEST 6, MUTE SNDRS 1 1	☀️
Cfg. 4 Zone Extender	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, ISOLATE 3, RESET X 5	☀️
Cfg. Fault I/P Polarity	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, ISOLATE 3, RESET X 5	☀️
Cfg. Latching Zone Faults	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, ISOLATE 3, RESET X 5	☀️
Cfg. Weekly Test Reminder	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, ISOLATE 3, MUTE SNDRS 1 1	☀️
Cfg. Non-Latching Zones	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, ISOLATE 3, EVACUATE 2	☀️
Sounder Fault Identification	TEST 6, EVACUATE 2, RESET X 5, ISOLATE 3, MUTE SNDRS 1 1, MUTE SNDRS 1 1	☀️

MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5
MUTE SNDRS 1 1	ISOLATE 3	MUTE PANEL X 4	RESET X 5