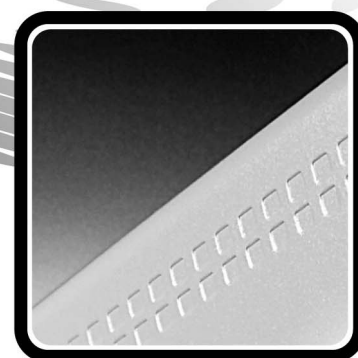


Syncro Focus Syncro Focus+

Network LCD Repeater Panel

Operation and Maintenance Manual

Man-1081 Issue 04 October 2009



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1. Introduction

The **Syncro Focus/Focus+** LCD repeater is a display and control unit which duplicates the indications and primary controls of Syncro fire alarm control panels connected to the same network.

The repeater connects to the control panel via the network interface and requires that the main control panel have an S555 network card fitted. For full details of Syncro networking refer to Syncro Networking Manual.

The repeater is connected to the network and any number of repeaters can be connected up to the maximum number of nodes allowed by the network specification, which is 64 (including control panels).

In addition to displaying the status of the fire alarm system, the repeater can provide limited local control functions via local control outputs.

2. Safety

Suppliers of articles for use at work are required under section 6 of the Health and Safety at Work act 1974 to ensure as reasonably as is practical that the article will be safe and without risk to health when properly used.

An article is not regarded as properly used if it is used 'without regard to any relevant information or advice' relating to its use made available by the supplier.

This product should be installed, commissioned and maintained by trained service personnel in accordance with the following:

- (i) IEE regulations for electrical equipment in buildings
- (ii) Codes of practice
- (iii) Statutory requirements
- (iv) Any instructions specifically advised by the manufacturer

According to the provisions of the Act you are therefore requested to take such steps as are necessary to ensure that you make any appropriate information about this product available to anyone concerned with its use.

The mains powered version of this equipment is designed to be operated from 230V 50Hz mains supplies and is of class 1 construction. As such it **must** be connected to a protective earthing conductor in the fixed wiring of the installation and a readily accessible double pole disconnect device shall be incorporated in the fixed wiring.

Failure to ensure that all conductive accessible parts of this equipment are adequately bonded to the protective earth will render the equipment unsafe.

3. Installation

Installation of the repeater should be carried out by qualified personnel only.

The electronic components within the repeater are vulnerable to physical damage and damage by electrostatic discharges.

It is advisable to wear a wrist strap designed to prevent the build-up of static charges within the body, before handling any electronic circuit boards.

Never insert or remove boards or components with the power on.

Mounting the Cabinet

The site chosen for the location of the panel should be clean and dry and not subject to shock or vibration.

The temperature should be in the range -5° to +35° C, the humidity should not exceed 95%.

Using the box as a template, mark the position of the fixing holes, ensuring that the wall is flat at the chosen location.

Drill and plug the wall then fix the cabinet using all fixing points.

4. Cabling

Cables should be brought into the cabinet using the knockouts provided and where necessary, using couplers to maximise the space within the enclosure.

Inlet bushings or cable glands should be used to maintain insulation of signal cores from earth.

The screen or drain wires should be bonded to the earth terminals provided.

The maximum size of cable, which can be terminated, is 2.5 mm.

The communications protocols are highly immune to noise but sensible segregation from known noise generating sources such as mains cables is recommended.

The mains version of the repeater panel requires a 230V AC supply, which should be derived from a separate fused spur, labelled **“fire alarm - do not switch off”**.

The mains supply must include an earth conductor connected to the fixed installation earthing system of the building.

A ferrite ring is fitted to mains powered versions of the repeater panel to suppress high voltage transients. The incoming mains cable **must** be passed through this ring twice before it connects to the power supply terminals, therefore tails should be left long enough to cater for this.

This equipment relies on the building installation for protection and requires a 5-amp protection device. The mains supply should use cable with a minimum cross section of 1.5mm.

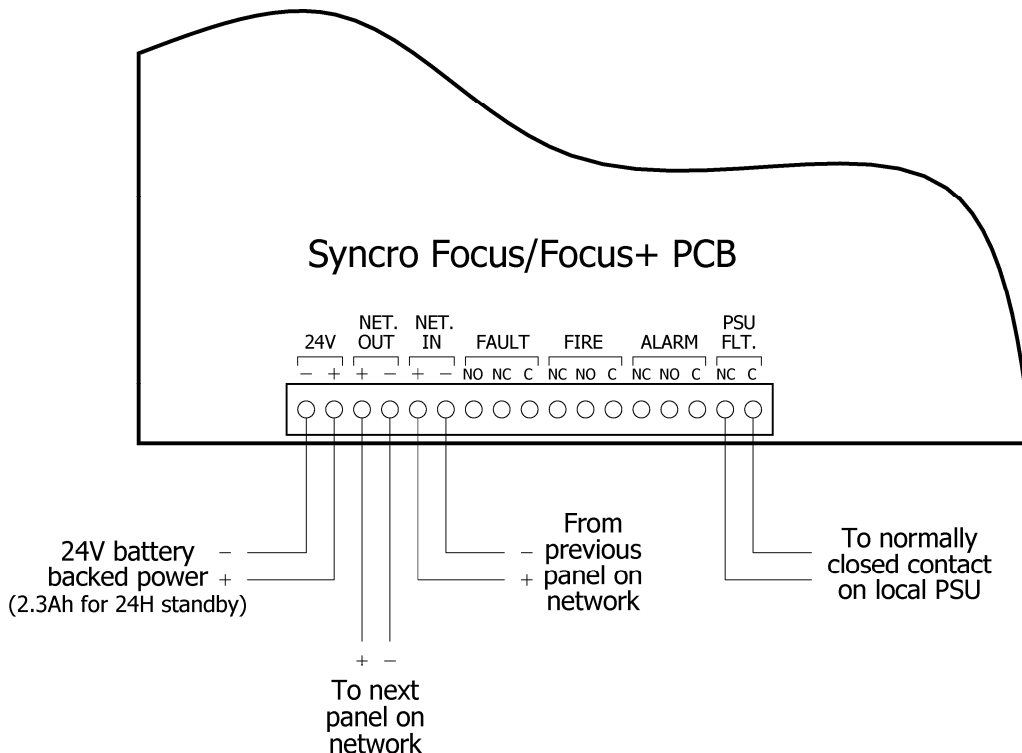
5. Connecting to the Repeater

All connections to the repeater are via 5mm pitch, 2.5mm capacity, spring leaf terminal blocks. Care should be taken to use the correct sized terminal screwdriver and not to over tighten the terminals.

Polarity must be observed carefully on any terminals with + or – markings.

The “NET IN” terminals must connect to the “NET OUT” terminals of the previous panel on the network. The “NET OUT” terminals must connect to the “NET IN” terminals of the next panel on the network.

Do not connect or disconnect circuits with the power on.



6. Front panel controls

The front panel contains controls for operating the repeater.

SILENCE BUZZER - This button can be operated at any time and will act as a lamp test button when the system is quiet. If there is an alarm or fault condition operation of this button will silence the internal buzzer.

MORE FIRES – In the event of more fires than can be displayed at any one time, the other fire events can be viewed by cycling through them with this button.

MORE EVENTS - In the event of more other events than can be displayed at any one time, the other events can be viewed by cycling through them with this button.

SILENCE ALARM – Acknowledges the fire alarm and silences all sounders.

RESET – Resets the main control panel from a fire condition and latching fault conditions.

RE-SOUND ALARM – Activates all sounder outputs.

7. Indications

Most information is presented via the large alphanumeric display and supplements LED indications which are provided for the following:

FIRE – Red indicator illuminates flashing when there are any active fires on the system and continuously when all fire alarms have been acknowledged.

POWER ON – Green indicator illuminated to indicate that the unit is being supplied with power.

FAULT – Yellow indicator illuminates to indicate a fault on the fire alarm system.

DISABLEMENT – Yellow indicator illuminates to indicate a disablement of one or more parts of the fire alarm system.

8. Powering the repeater panel

Ensure that the panel is free from swarf; wire ends, knockout discs and any other debris.

Connect the incoming 24V DC whilst carefully observing the polarity. If a local power source is being used, then a volt free normally closed contact from the power supply should be connected to the PSU FLT terminals so that power faults are reported.

When supplied, the PSU FLT input is fitted with a link. The link should be removed and discarded before connection of the local power supply fault contact.

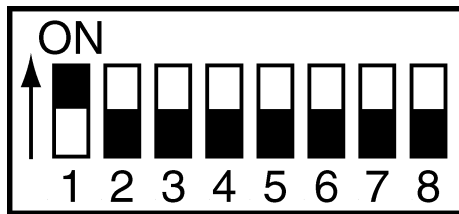
The current consumption of the repeater with the PSU FLT input activated is 80mA. The effect on the battery capacity of the power supply which is powering the repeater should be considered when connecting repeaters to a system.

9. Configuring the repeater panel

The repeater panel is configured via the network connection by a PC connected to a control panel, which is in communication with the repeater. Repeaters that have not been configured will default to displaying all events from all panels connected to the network.

Repeater panels need to have an address allocated to them so that the main control panel can send the configuration information to the right one and also detect if a repeater goes missing from the network.

The address is allocated by setting a binary number between 1 and 64 on a DIL switch on the repeater circuit board.



(The black part shows the switch actuator)

This switch setting shows address number one.

Switch position up selects the binary digit, so a switch with 1,2 and 3 up would represent address number 7.

Syncro Focus / Focus+ Auto-Learn Shortcut

In order to "learn" the revised address and to set the Focus / Focus+ to default network settings (show all events from all panels), follow this procedure

- 1) On the front of the Focus / Focus+ repeater, press and hold the "More Fires" and "More Events" buttons
- 2) Inside the Focus panel, press and release the "CPU Reset" button
- 3) Continue to hold the "More Fires" and "More Events" buttons until the "Auto Learning" message is shown on the Focus display
- 4) Release the "More Fires" and "More Events" buttons

When the autolearn is complete, the Focus display will revert to the Fire System Normal message.

The Loop Explorer PC configuration programme allows repeaters to be configured to display and process selected events from selected panels.(†)

As mentioned earlier, the default configuration is for a repeater to display all events from all panels. The repeater may however be required to display and/or process only selected events from selected panels. This is possible by creating a configuration in the Loop Explorer programme and downloading to the network from a control panel.

(†)- NOTE; This is subject to the operating system installed on the Syncro control panels. Contact Kentec Electronics Limited (01322 222121) for further details

10. Relays

Repeater panels do have a limited control capability via some volt free contact relays, which may be used for local signalling.

There are three contacts available:

FIRE – operates whilst any fire condition is being reported by the repeater and remains operated until the fire condition is reset.

ALARM – operates whilst any unacknowledged fire conditions are being displayed by the repeater and de-activates when the alarm is acknowledged.

FAULT – operates whilst the repeater panel is displaying any fault conditions and clears when all fault conditions are cleared.

The fault contact will also operate upon total power failure.

All relay contacts have a maximum rating of 30V DC and a 1 Amp current rating.

Under no circumstances should voltages or currents over these limits be connected to the relays.

11. Internal controls and indications

11.1 Contrast adjust

A control is provided to adjust the contrast of the display. Slight adjustment of the contrast may become necessary as the repeater ages
The contrast adjust control is located on the bottom right edge of the PCB and is clearly labelled CONTRAST.

11.2 W/DOG indicator and switch

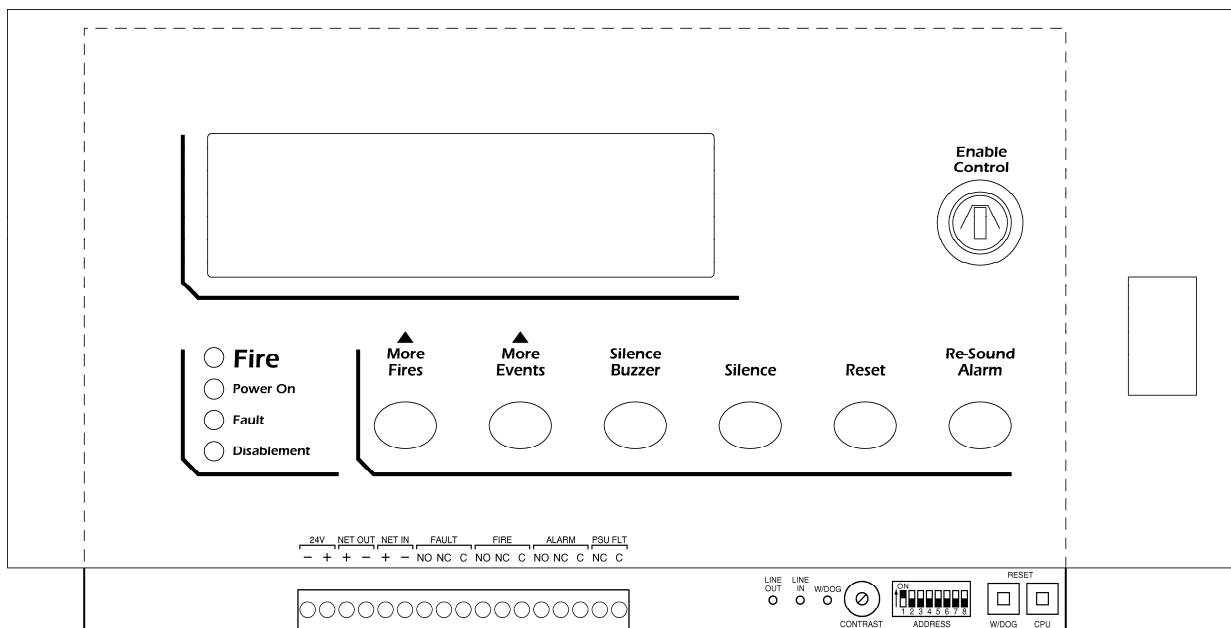
Under certain extreme circumstances (a lightening strike in the vicinity for instance), the microprocessor controlling the LCD repeater may fail to execute its instructions correctly. If this happens, the microprocessor will reset itself and start operating correctly when the source of the interference has passed. When this occurs, the W/DOG (watchdog) indicator will light and will remain lit until it is reset by the W/DOG pushbutton switch.

11.3 CPU reset switch

It should not normally be necessary to reset the microprocessor manually but in case it is, a switch is provided for this and it is located next to the W/DOG reset switch.

11.4 Network communications

The LCD repeater has a green and a yellow LED indicator fitted to show the status of the incoming and outgoing communications. Under normal circumstances, both LEDs will be lit, indicating that the repeater is communicating with both of its neighbours or on both lines if only two panels are connected. If one or both of the LEDs are not lit then the connection to neighbouring panels is not sound.



12. Cable Length

The Syncro network communications protocol has been designed to be extremely tolerant to interference and data corruption, however as with any system, there have to be limitations set to guarantee correct operation.

The specified transmission distance limit for the communications method used is 1200 metres and because the data is re-transmitted at each network card and repeater, in theory, there can be 1200 metres between each point if required.

Using the above cable distances however, does not take into account the failure of a network point to communicate with the system through total power failure or other fault.

In this situation, the network pointy would disconnect itself from the network and connect the network cable such that it bypasses the point in question. This means that the total cable length between the points either side of the disconnected one could be 2400 metres, which is outside of the specification for the communications method used.

This fault scenario could clearly be extended to more network points and this would add 1200 metres of cable length in each case.

A sensible fault tolerance limit has therefore to be suggested to enable the performance of the system to be predicted.

Because of the nature of the fire protection system, its design is biased towards inherent reliability and failure of a network point, although possible, is very unlikely.

Fire control panels also have substantial back up power systems, therefore, the likelihood of a total power failure under operational conditions, is also extremely rare.

A suggested tolerance level of one point failure is therefore recommended.

To guarantee operation of the system with one point failure it is necessary to arrange the cabling such that the failure will not introduce more than 1200 metres of cable between the two points which would be connected together by the failure.

This means that the total cable length between adjacent cable segments should not be more than 1200 metres. It is not important how the 1200 metres is made up i.e. it could be 100 metres and 1100 metres or 600 metres and 600 metres.

Using these general rules and the specified or equivalent cable types will provide a guaranteed performance of networks with plenty of tolerance.

In reality, the networked system will operate quite satisfactorily with longer cable runs and if a system is required which is outside of the parameters specified, the manufacturer should be consulted for guidance on specific designs.

13. Cable Type

The cable type used for the network connection should be suitable for RS-485 applications and equivalent to the ones listed below.

Up to 600 metres distance between panels

BELDEN NUMBER	NOMINAL OUTSIDE DIAMETER	NOMINAL CAPACITANCE	NOMINAL IMPEDANCE	VELOCITY OF PROPOGATION
9271	6.1mm	40pF/m	124 OHMS	66%

Up to 1200 metres distance between panels

BELDEN NUMBER	NOMINAL OUTSIDE DIAMETER	NOMINAL CAPACITANCE	NOMINAL IMPEDANCE	VELOCITY OF PROPOGATION
9860	11.18mm	35pF/m	124 OHMS	78%

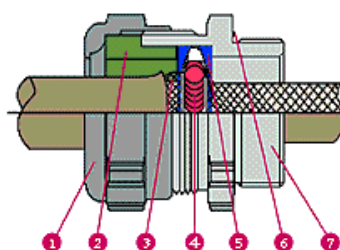
Cable entry

Contrary to earlier preferred methods of terminating the shield on shielded cables, today's EMC noisy environments require that the shields of these cables be bonded to earth at all points on the system.

The most effective method of achieving this is to use EMC cable glands, which connect the shield to the gland and earth in a 360-degree ring. Simply stripping back the insulation of the cable and connecting "pigtailed" to earth is not recommended.

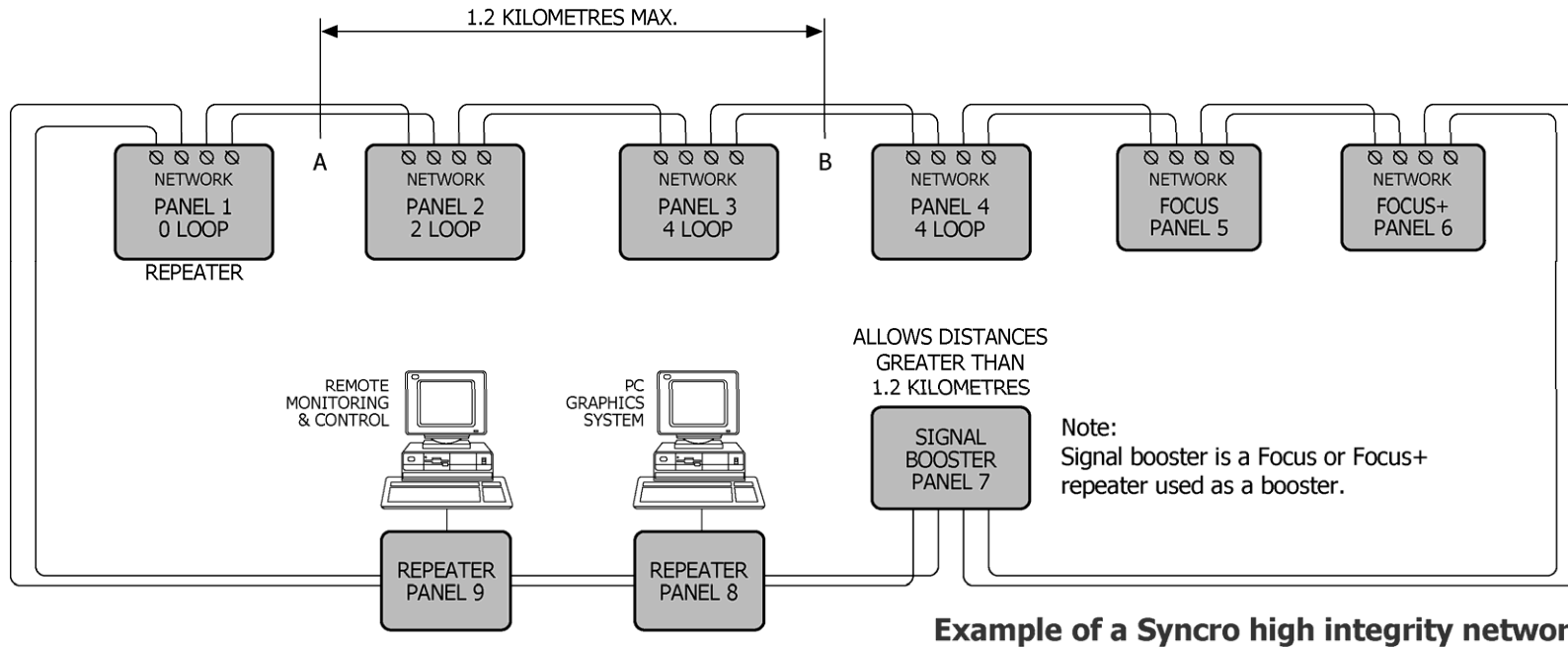
When using this method it is also important to ensure that the gland body is electrically bonded to the panel enclosure.

Example of EMC gland



- 1 – Compression nut
- 2 – Seal
- 3 – Cable screening
- 4 – Endless spring
- 5 – Tapered ring
- 6 – "O" ring
- 7 - Gland body

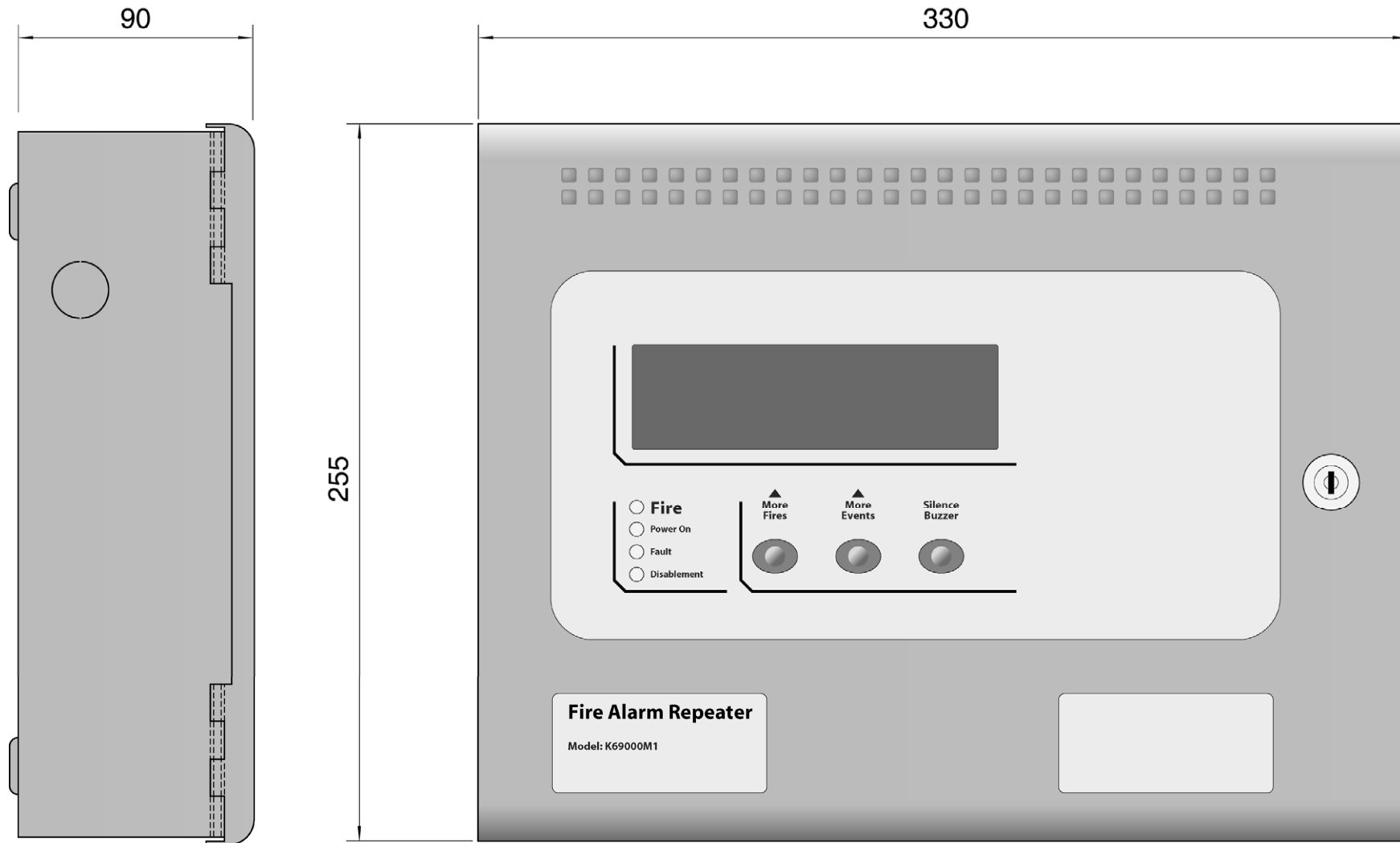
14. Wiring Scheme



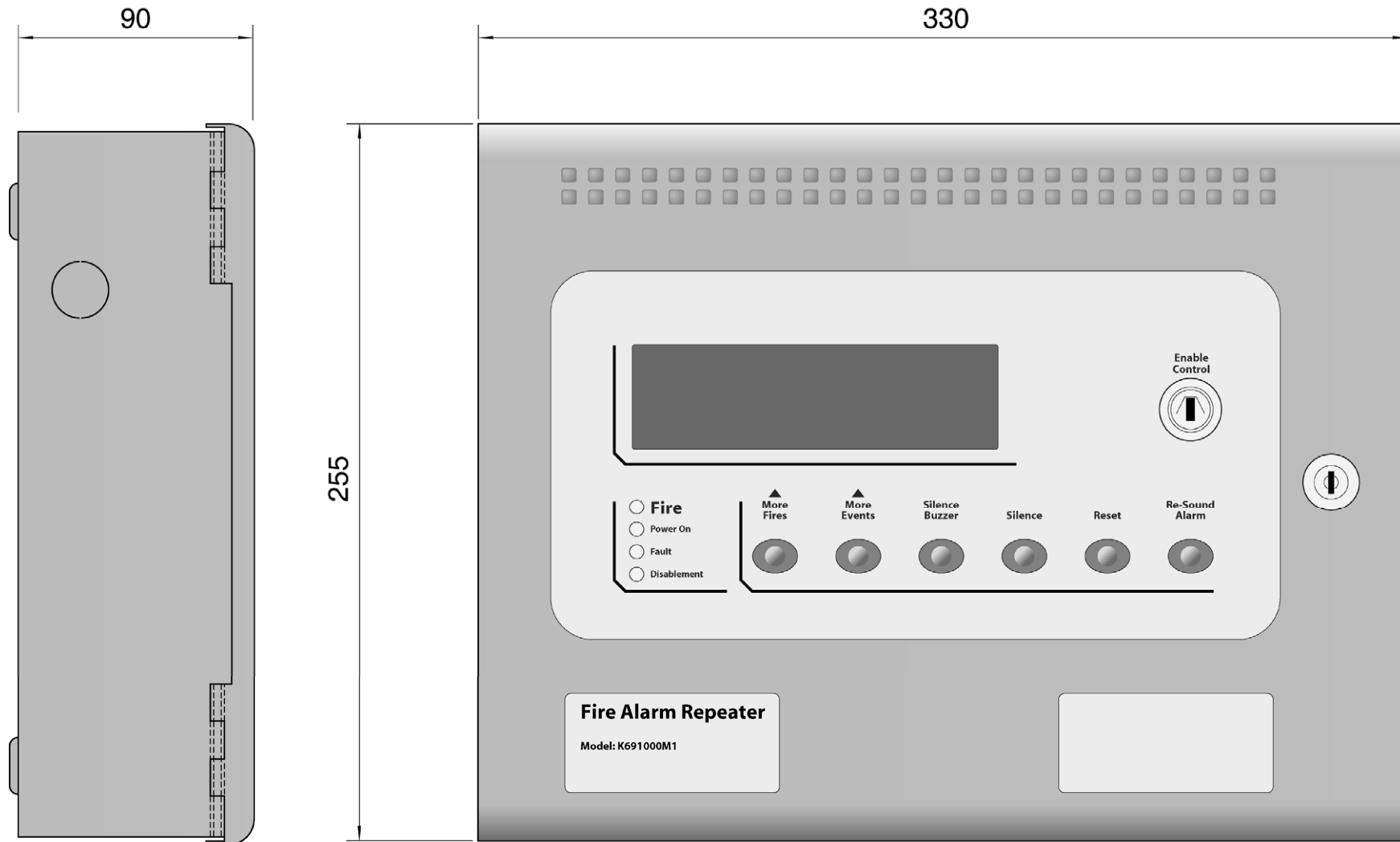
Syncro Network Cabling

- 1) Cabling wired as a ring which visits all panels.
- 2) Short circuit detection at each network connection and automatic isolation of the shorted section of cable.
- 3) 1200 metres maximum cable length between two adjacent segments
- 4) A short circuit at point A will automatically disconnect the shorted section and announce a fault condition at all panels but the entire network will continue communicating.
- 5) A short circuit at points A and B will automatically disconnect both sections and announce faults at all panels. Communication will continue between panels 1 and 4 and between panels 2 and 3.
- 6) All panels will compute whether the faults will prevent operation of any cause and effects configurations and either assume inputs to be true (if configured to default to "true upon network fault") or display, print and log the cause and effects which are affected.
- 7) Open circuit faults will allow the network to continue operating in the same way as short circuit faults.
- 8) Network cabling to be either standard Belden RS485 suited type or optical fibre.
- 9) Up to 64 node.

15a. Panel Fascia – Focus (3 Button Version)



15b. Panel Fascia – Focus+ (6 Button Version)



16. Specifications

Size (24V DC model) – 330mm x 250mm x 88mm

(230v model) – 330mm x 250mm x 88mm (maximum battery size 2Ah)

Weight (24V DC model) – 2.5Kg

Weight (230V AC model) – 4.0Kg

Construction – 1.2mm mild steel and aluminium extrusions

Finish – Epoxy powder coated

Input voltage (24V model) – 21V DC – 30V DC

Input voltage (230V AC model) – 230V AC +10%/-15%

Current consumption – 80 milliamps at 24V DC.

Contact ratings – 30V DC 1 Amp max

Operating temperature - -5 to +40 degrees C

Display – 240 X 64 pixel graphic LCD

Cable entry – 3 x 20mm knockouts top and bottom

Indicators – 5mm high brightness LED.

Communications – Syncro System network protocol only

Cable length – 1200 metres to alternate nodes

Cable type – Belden 9271, Belden 9860 or FP200 Gold

Control panel compatibility – Software versions V3.4 and above