# Data and Installation
# Network Node
## (VIG-NODE-24)

GENT
by Honeywell

The Vigilon Network Node (also referred to as Terminal node) can accommodate additional cards in place of loop cards, such as network cards to connect two networks together and IO cards to connect remote printer and Central system. The node houses its own power supply with batteries that provide standby power in the event of mains supply failure. A lockable front door prevents unauthorised access to fire alarm controls, but allows all of the indicators to be seen. Two push button controls are located on the front door below the display that enable Fire messages to be scrolled in the event of multiple fires. The node is designed for surface or semi flush mounting, with rear and top cable entry points.

## Features

☐ Two master alarm circuits

☐ RS485 to connect to a Repeat Indicator panel

☐ RS232 to connect to another control panel (domain bridge) external printer or commissioning tool

☐ Two sets of auxiliary relay change over contacts configurable to operate with fire, fault or disablement

☐ One set of clean voltage-free change over contacts that operates with fire events

☐ Standby supply to power the system in the event of mains failure

☐ LCD alphanumeric type display with back light to show event information

☐ LED lights for event indication

☐ Local audible buzzer to announce events

☐ Push button for essential controls and menu driven commands

☐ Four programmable control buttons (U1 to U4)

## Contents

# Technical data

## Panel

| | |
|---|---|
| Dimensions in mm | height 543 x width 406 x depth 172 |
| Panel weight | 10.2Kg approximately + 2 batteries, 12V 21Ah battery weighing 6Kg each |
| Storage temperature | -10 to +55ºC |
| Operating temperature | -5 to +40ºC |
| Relative Humidity (Non condensing) | up to 90% Temperature -5 to +40°C |
| Emission | BS EN50081-1:1992 Part 1 Residential, Commercial & Light Industry **Class B limits.** |
| Immunity | BS EN50130-4: 1996: Part 4 Alarm systems: *Electromagnetic compatibility* Product family standard: *Immunity requirements for components of fire, intruder and social alarm systems.* |
| Ingress Protection | IP30 |
| Colour | Door: Grey (Pantone 422) Back box: Graphite Grey (RAL 7024). |
| Network | The node is supplied with a network card for secure network connections: Copper (RS485) - 1.2Km (supplied) Fibre Optics - 2Km (optional) |
| RS232 and RS485 connections | The node is supplied with an IO card that facilitates RS232 for connecting to another panel (domain bridge) or Central computer system. The maximum cable length allowed for RS232 is 10m. The maximum cable length allowed for RS485 is 1.2Km. |

| | |
|---|---|
| **Plug in Card slots** | |
| MCC / LCC -P1 | Master Control card (node)-# |
| IOC / N/W -P2 | Input Output# / Network card |
| Loop 1 - P3 | Input Output card option |
| Loop 2 - P4 | Input Output card option |
| Loop 3 - P5 | Input Output card option |
| Loop 4 - P6 | Input Output card option |
| N/W or I/O - P7 | Input Output or Network card |
| N/W or I/O -P8 | Input Output or Network card# (# - **supplied**) |
| Auxiliary relays | Voltage-free contacts rated 1A @ 24Vdc |
| Aux relay 1 | 2 sets of change over contacts configured to operate immediately with **any system Fire** event. The relay is normally **de-energised**. |
| Aux relay 2 | 2 sets of change over contacts configured to operate immediately with **any system Fault** event. The relay is normally **energised**. The relays can be re-configured to operate with any Fire, Fault or Disablement event, with a delay of up to 10 minutes and can operate in a normally energised or de-energised state |
| Clean contacts | 1 set of voltage free change over contacts rated 1A @ 24Vdc, active with **any fire event**. |
| Master alarm circuits | Operates with any **system fire event** 2 - (24 volts nominal) 400 mA max. per circuit MA1 - fuse 1A FS1 MA2 - fuse 1A FS2 Both fuses are 20mm x 5mm in size and are located on the Terminal card. |
| Indicators | Power (green) Power Fault (amber) Delay (amber) Test (amber) Verify (amber) CB253 CB254 (amber) Fault (amber) Disablement (amber) System fault (amber) Sounder (amber) |
| Display | Alpha-numeric display - 8 lines by 40 character per line, back-lit, (Black characters on green background, liquid crystal display). |
| Internal sounder | To announce Fire and Fault events, plus give a key press confirmation beep. |

| | | | |
|---|---|---|---|
| Menus | [Control], [Setup], [Information] and [Test Engineering] menus accessed via Menu On/Off, F1, F2, F3 and F4 buttons. | Battery circuit(s) | Terminals to connect to internally housed batteries, capable of reaching a charged state in 72Hr. |
| Controls (with door closed) Access level 1 | Next and Previous buttons operable during Fire condition only. | Battery | Batteries are installed in the panel 2 x  Powersonic PG-12V21, 12V 21Ahr batteries (supplied) |
| Controls (with door open) Access level 2a | Sound Alarms, Silence Alarms, Reset, Cancel Buzzer, Verify, F1-F4 keys, Menu On/Off key, QWERTY key board, U1-U4 keys available if configured to perform site specific actions by triggering CB251, CB252, CB253 and CB254. | Light indications | To show the status of PSU |

**PSU Fuses**

| | |
|---|---|
| Mains | FS6 T3.15A Ceramic |
| Protects 44V supply | FS2 F3.15A Glass |
| Battery charge circuit | FS7 F5A Ceramic Above fuses are 20mm x 5mm size |

| | |
|---|---|
| Storage temperature | -10 to +55ºC |
| Operating temperature | -5 to +40ºC |
| Relative Humidity (Non condensing) | up to 90% Temperature -5 to +40°C |

| | |
|---|---|
| Controls (with door open) Access level 2a<br><br>User having door key | (see above) |
| Access level 2b User having door key and *customer* password | As access level 2a plus access to complete level 2 menu commands. |
| Access level 3 Engineer having door key and *engineer* password | As access level 2b plus access to all menu commands. |
| Logs | **Active system Logs:** Fire, Fault and Disablement<br>**Historic system log**: All events<br>**Event system logs:** Fault, Disablement, Warning, Supervisory, Exceptions and Historic fires. |
| Printer | The integral printer operates when the outer door is open. The printer menu driven controls include: on, off, Line feed and Test print.<br>An optional remote printer can be connected to the panel. |

⚠️ **Always use the recommended replacement battery, as there is a risk of an explosion if incorrect battery is used.**

## Power supply

| | |
|---|---|
| Mains operating voltage | 230V -15% +10%  50/60Hz protected by a 3.15A (T) 250V Ceramic 20mm x 5mm, located on PSU. Input current - 1.4A |
| Nominal supply voltage for master alarm circuits | 24V +1V, -4V |

# Notes on system installation

## The power-up of the Network Node and commissioning of the system is done by the Servicing organisation.

### Installation requirements

It is recommended that the installer follow the general requirements of *BS5839:Part 1*, which is the *code of practice relating to fire detection and alarm systems for buildings.* The installer must follow the relevant parts of *BS7671 Requirements for Electrical installations, IEE wiring regulations 16th edition* if installation is in the United Kingdom, UK.

### Second fix installation

To prevent the possibility of damage or dirt degrading the performance or appearance of the products, the installed products must be suitably protected until all major building work in the area is complete.

The second fix parts of the panel like the inner door and control cards, these are supplied in separate cartons and are installed during the commissioning stage.  An outer temporary door must be fitted to the backbox to protect the PSU and backplane board inside the backbox. The temporary door is removed during the commissioning stage.

ℹ️ **The installation of all outstanding parts is usually carried out during commissioning of the system.**

## Fixture and fittings

It is the installer's responsibility to provide adequate fixtures and fittings for the type of construction surface onto which a product is to be installed, whilst utilising the fixing points on the respective product. As an aid to this decision, the weight and overall size of each full assembly together with implications on cable entries and routing should be taken into consideration.

> ⓘ **All these procedures assume that the cable, gland, steel box (BESA box) and other related accessories are provided by the installer.**

## As fitted drawings

The installer should acquire site specific information from the interested parties, for details on the location of products for installation. The acquired information together with this guide and the relevant standards should be used to assist the work.

Each product assembly can be identified from its package label. The contents of all packages should be checked for any discrepancies.

## Cable type and routing

Appropriate attention must be given to ensure correct cable type is installed in accordance with as fitted drawings, site specific information and recommendations of *BS5839 Part 1*. The cables must be installed using cable manufacturers recommended fixings and accessories.

## Earth continuity

All earth connection points should be **clean to provide a good electrical conductivity path. To maintain the earth continuity all earth leads and fittings** provided should be installed. The **loop cable** screen must be continued through each system device on the loop circuit, whether the earth is connected to the device or not.

> ⓘ **Do not rely on any part of building structure for earthing.**

Some of the system products having metal enclosures have a **zinc coating** around the cable termination points, the coating provides a good electrical conductivity path for cable earth termination.
The zinc coating on the metal enclosures should not be damaged. Any damage will expose bare metal, which can corrode and make a poor earth connection.

## Mains supply

Mains supply to any fire alarm control and indicating equipment must be via an unswitched 5A fused spur unit. A disconnect device must be provided to disconnect both poles and must have a minimum gap of 3mm. The disconnect device should be available as part of the building installation and must be easily accessible after installation is complete.

> ⓘ **All mains powered equipment must be earthed.**

# Installation

The Vigilon Network node is supplied with:

☐ Back box assembly having a PSU
☐ Inner door
☐ Moulded outer door
☐ Main Controller Card (node)
☐ Network Card
☐ Domain bridge IO card
☐ Spares pack
☐ 2x12V 21Ah batteries)

**Parts supplied in spares packs**

| Part | Vigilon Node |
|---|---|
| Cable tie | 3 |
| Ferrite core | 1 |
| 22K 0.5W Resistor | 2 |
| Battery lead | 1 |
| Spade tag | 2 |
| Link lead | 1 |
| Instructions | 1 |
| 20 x 5mm Fuse 5A QB Ceramic | 1 |
| 20 x 5mm Fuse 3.15A AS Ceramic | 1 |
| 20x 5mm Fuse 3.15A QB glass | 1 |
| Adhesive backed foam pad | 1 |
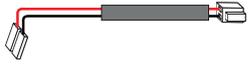
Each battery pair of 2 x 12V 21Ah is supplied with:

4 x bolts      4 x washers      4 x spring washers

## Back box installation

These instructions cover information on the backbox assembly only, all remaining packages are installed during the commissioning by the servicing organisation.

> **ⓘ**      **The network node can be surface or flush mounted.**

a.    Identify the package NETWORK-NODE-24 and check that it contains all the parts.
b.    Remove the temporary cover from the *Back box*.
c.    Knock out/in the required cable entry points from the *Network node back box*.
d.    Use the fixing points provided mount the Back box to the wall using suitable fixings.

> **⚠**      **The fixings must support a fully assembled network node with batteries weighing 22.2Kg.**

e.    Terminate each cable at the entry point leaving 400mm tail wire length and mark each core to identify its final connecting point.

> **⚠**      **If the mains cable is not connected to the respective terminals then ensure the tail ends are insulated to guard against accidental switching On of the mains supply.**



Earth to Inner door

Cable entry points
18 - Back
18 - Top
2 - Bottom side (on the right)

9-off Earth points (1-0ff bottom side on the right hand)

Mains supply cable Knock outs

Backplane

1.7m

502mm

Dust cover over backplane

Adhesive backed foam pad to seal up gap to prevent ingress

PSU

0V to printer

5-off Backbox fixing points (includes 1 keyhole)

390mm

Floor level
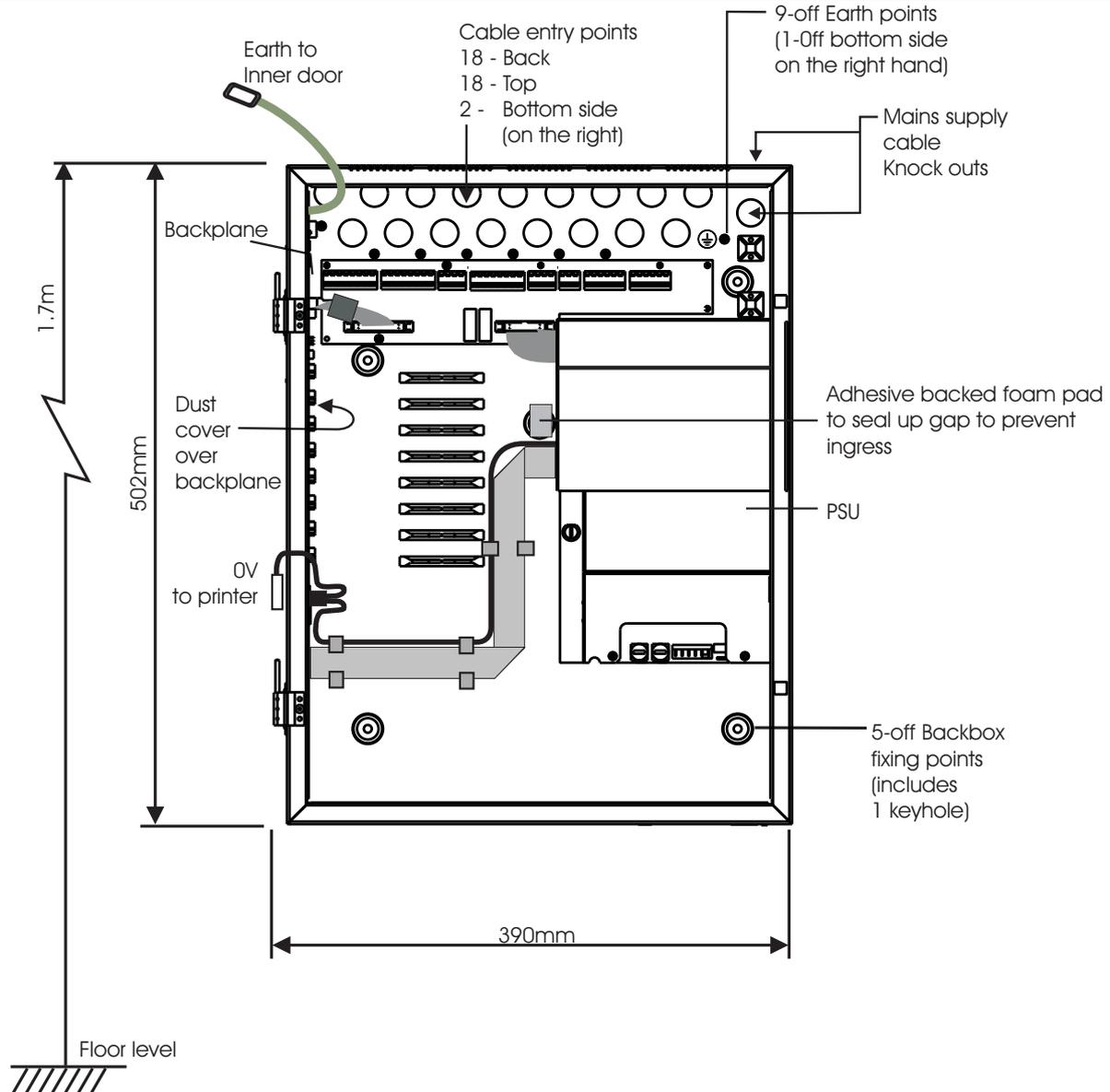
## Semi-Flush fixing the Network Node

The Node may be flush mounted using a flush surround VIG-24-FLUSH. A stainless steel variant of the flush surround (VIG-FLUSH-SS) will require a stainless steel door VIG_DOOR_SS.

a.  Check the contents of the *flush surround* package.
b.  Cut out an aperture in the wall to allow the *flush surround* to be fitted, see diagram for dimensions of the aperture.
c.  Using the fixing holes on the *flush surround* secure it into the aperture side walls.
d.  Knock out the appropriate top or rear cable points on the back box.
e.  Route the cables through the cable entry points into the *back box* and at the same time insert the *back box* into the *semi-flush surround*.
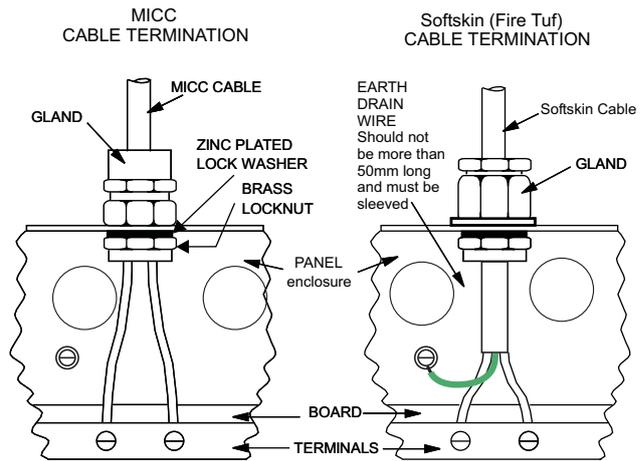f.  Fit the *back box* to the *semi-flush surround* using the 5 - 5mm screws supplied.



Cross section of the wall to which the panel is to be flush mounted

Aperture depth - **132mm**

Control panel flush surround

Aperture

Network node

Flush Surround

5mm diameter fixing holes

Aperture Width: **390mm** - Control panel

Aperture Height: **510mm** - Control panel
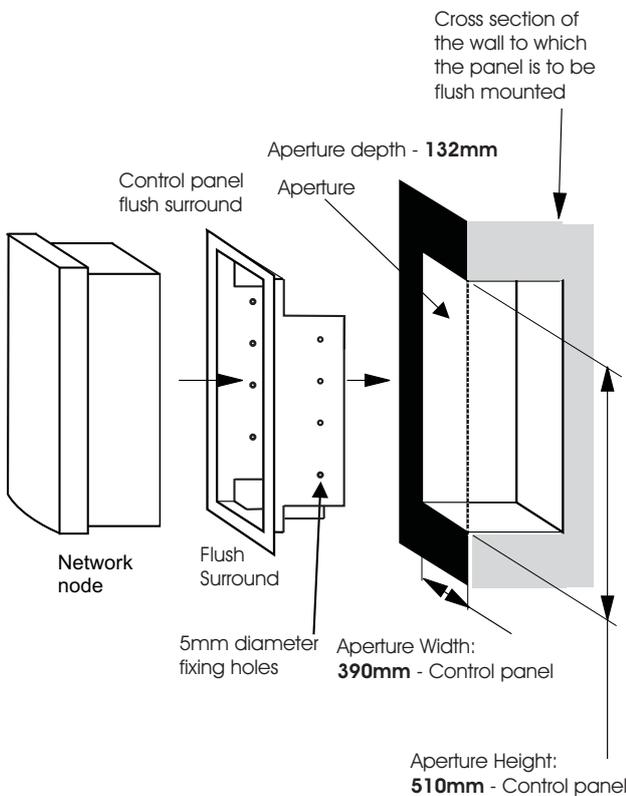
## Cable termination and markings



MICC
CABLE TERMINATION

Softskin (Fire Tuf)
CABLE TERMINATION

MICC CABLE

GLAND

ZINC PLATED
LOCK WASHER

BRASS
LOCKNUT

EARTH DRAIN WIRE
Should not be more than 50mm long and must be sleeved

Softskin Cable

GLAND

PANEL enclosure

BOARD

TERMINALS

The wires between the termination point and terminals should be as short and straight as possible.

Where a cable has an earth drain wire this should be fitted to the earth point nearest the cable entry point, with the length not exceeding 50mm.

Terminate each cable at the dedicated entry point on the enclosure, using the cable manufacturer recommended techniques.
Where the cable is not required to be connected, leave **400mm  tail wire length** (unless otherwise instructed) **and mark each core** identifying its final point of connection.
Where the cable is required to be connected, ensure it is secured to the respective terminal.

### Wiring test

> ⚠️      **DO NOT undertake high voltage insulation tests WITH THE CABLES CONNECTED to the panel and system device terminals. Such a test may damage the electronics circuitry in loop devices and at the panel.**

## Mains supply

> ⚠️ **Ensure that the mains supply cable enters the panel through a dedicated cable entry point.**

> ℹ️ **These fire alarm system products are NOT designed to be powered from IT Power systems.**
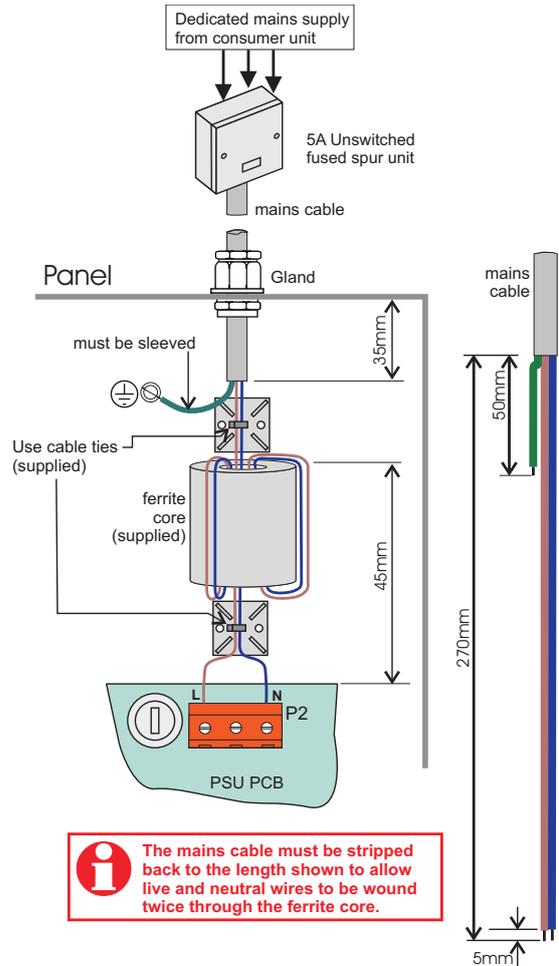
All mains powered equipment must be earthed.

Mains supply to any fire alarm control and indicating equipment must be via an unswitched 5A fused spur unit. A disconnect device must be provided to disconnect both poles and must have a minimum gap of 3mm. The Disconnect device should be available as part of the building installation and must be easily accessible after installation is complete.

## Mains and battery supply connections

The mains and battery supply cables must be installed to the stage to **facilitate the power up** for commissioning, which is carried out by the Servicing organisation.

> ⚠️ **Where mains cable is to remain disconnected, its tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching On of the mains supply.**



> ℹ️ **The mains cable must be stripped back to the length shown to allow live and neutral wires to be wound twice through the ferrite core.**

The fused spur isolator cover should be marked:
**FIRE ALARM - DO NOT SWITCH OFF**
**The fire alarm equipment's fused spur unit must be fed from a dedicated switch or protective device at the local mains supply distribution board.**

## Mains and battery supply connections

The mains and battery supply cables must be installed to the stage to **facilitate the power up** for commissioning, which is carried out by the Servicing organisation.
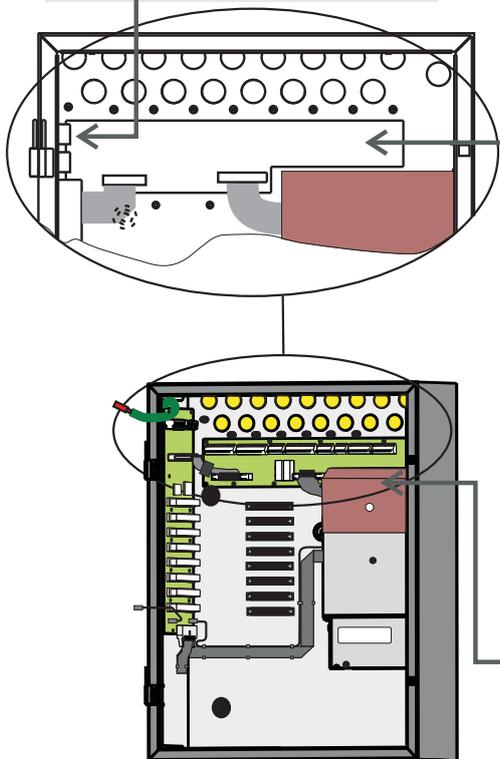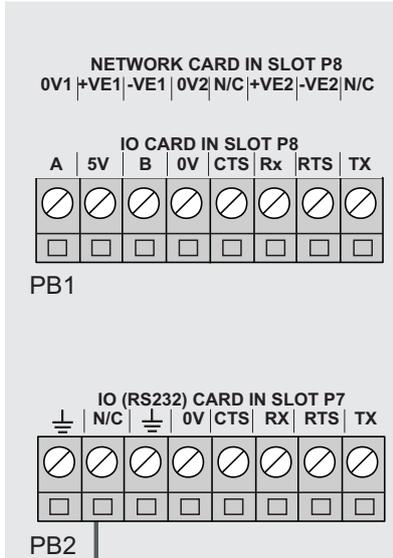Where mains cable is to remain disconnected, its tail ends must be insulated to prevent dangerous conditions arising in the event of accidental switching On of the mains supply.
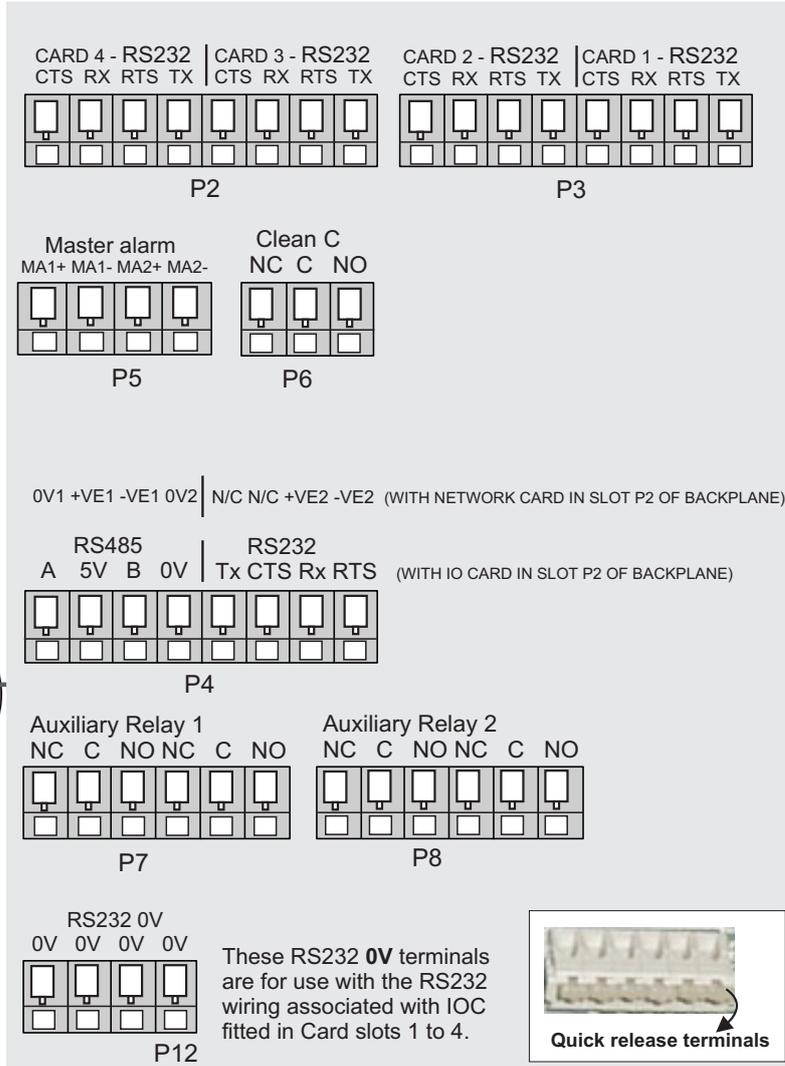
## Terminals for external circuits

The Network node has a Terminal card that holds all the terminals for the connection of external circuits. The exception are:

☐ Terminals for CARDS in slots P7 and P8, these are located on the Backplane

☐ Mains supply terminals which are located on the mains terminal block on PSU

☐ Battery connections are located on the PSU.

**Backplane**

**NETWORK CARD IN SLOT P8**

| 0V1 | +VE1 | -VE1 | 0V2 | N/C | +VE2 | -VE2 | N/C |

**IO CARD IN SLOT P8**

| A | 5V | B | 0V | CTS | Rx | RTS | TX |

PB1

**IO (RS232) CARD IN SLOT P7**

| ⏚ | N/C | ⏚ | 0V | CTS | RX | RTS | TX |

PB2

**Terminal card**

| CARD 4 - RS232 | | | | CARD 3 - RS232 | | | |
| CTS | RX | RTS | TX | CTS | RX | RTS | TX |

P2

| CARD 2 - RS232 | | | | CARD 1 - RS232 | | | |
| CTS | RX | RTS | TX | CTS | RX | RTS | TX |

P3

Master alarm
| MA1+ | MA1- | MA2+ | MA2- |

P5

Clean C
| NC | C | NO |

P6

| 0V1 | +VE1 | -VE1 | 0V2 | N/C | N/C | +VE2 | -VE2 | (WITH NETWORK CARD IN SLOT P2 OF BACKPLANE) |

RS485 | RS232
| A | 5V | B | 0V | Tx | CTS | Rx | RTS | (WITH IO CARD IN SLOT P2 OF BACKPLANE) |

P4

Auxiliary Relay 1
| NC | C | NO | NC | C | NO |

P7

Auxiliary Relay 2
| NC | C | NO | NC | C | NO |

P8

RS232 0V
| 0V | 0V | 0V | 0V |

P12

These RS232 **0V** terminals are for use with the RS232 wiring associated with IOC fitted in Card slots 1 to 4.



**Quick release terminals**

**PSU board (located behind the cardboard cover)**

| L | N |

P2

## Network connections



Where a multicore cable is being used ensure the unused cores (cores without signal) are connected to 0V.
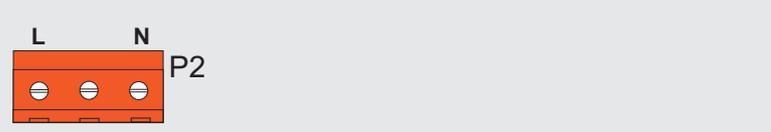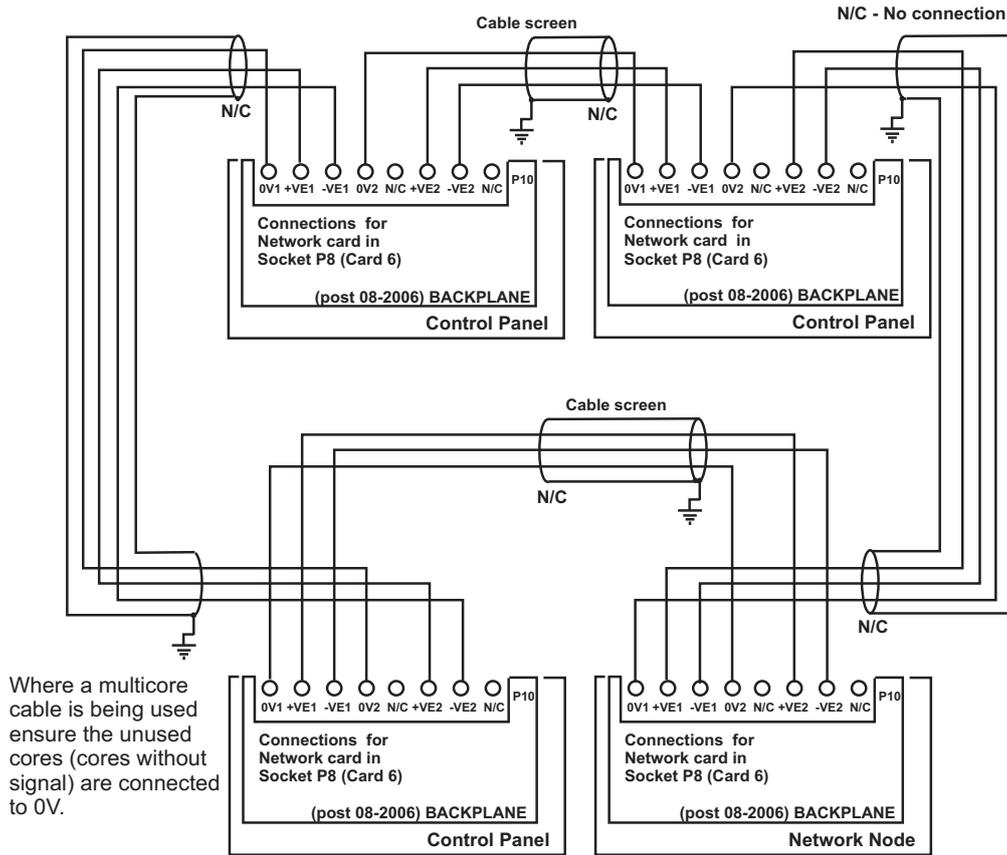
## Master alarm circuits

The network node operates the master alarm circuits in the event of any fire in the network. The two master alarm circuits accept the connection of conventional alarm sounders including the conventional S-Cubed products.



22K Ohms - End-of-line resistor fitted in the last alarm sounder

Conventional alarm sounders
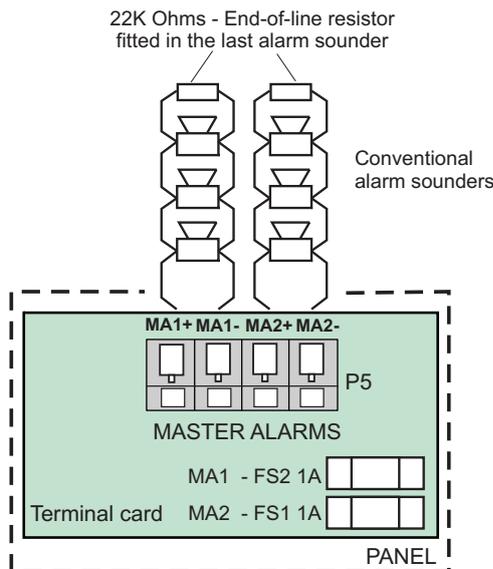
## Auxiliary relay circuits

The network node operates the auxiliary contacts when the configured event is received from anywhere in the network. The auxiliary relays 1 and 2 contacts are for use to control external equipment, such as automatic dialler that makes the call for fire fighting action. The relays can be individually re-configured to operate with either fire, fault or disablement event in the system. The relay operation can also be delayed by up to 10 minutes and can be set up to operate in a normally energised or de-energised state. The contacts should be powered from an independent power supply.



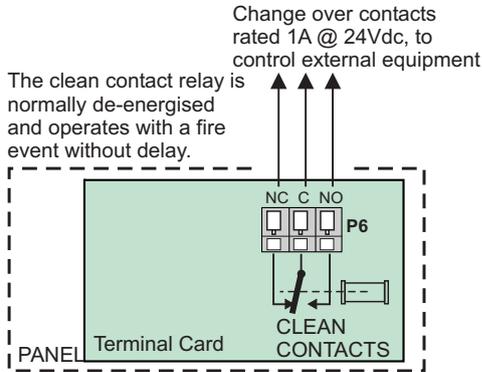Change over contacts rated 1A @ 24Vdc, to control external equipment
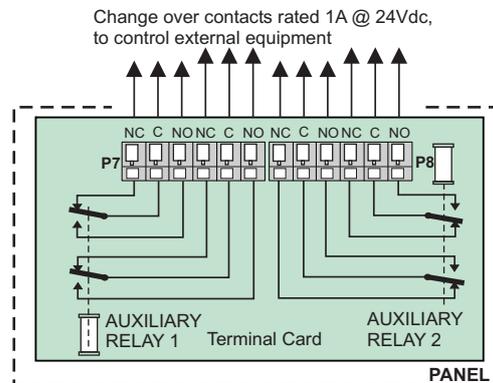
Factory default:
Aux relay 1 is normally de-energised and operates with a fire event without delay.
Aux relay 2 is normally energised and de-energises with a fault event without delay.

Note: Aux relay 2 has been shown in the above diagram in its de-energised state, which is the state when there is no power to the panel.
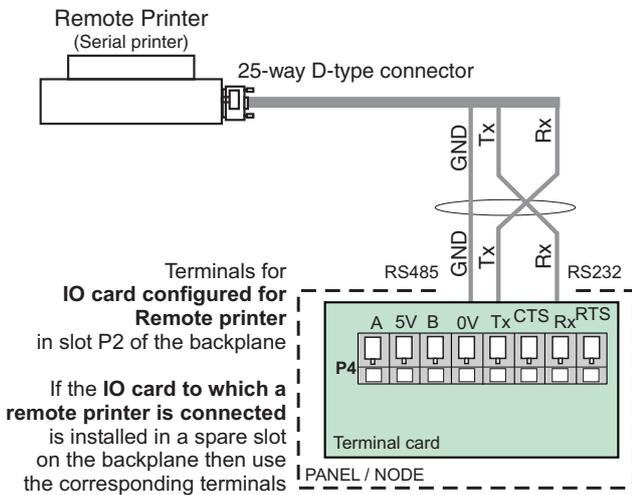
## Clean contacts

The network node operates the clean contacts when a fire event is received from anywhere in the network. The clean contacts can be used to signal plant equipment, such as lift control system. The relay will alway operate in the event of a fire. The contacts should be powered from an independent power supply.

Change over contacts rated 1A @ 24Vdc, to control external equipment

The clean contact relay is normally de-energised and operates with a fire event without delay.

NC  C  NO

P6

CLEAN CONTACTS

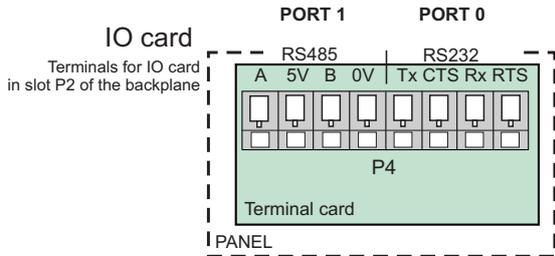Terminal Card

PANEL

## Remote printer

The remote printer connected to a Network Node will print network system events.

**An IO card must be inserted in slot 2 of the backplane of the panel, which will facilate remote printer functionality.**

Remote Printer
(Serial printer)

25-way D-type connector

GND  Tx  Rx

GND  Tx  Rx

RS485          RS232

Terminals for **IO card configured for Remote printer** in slot P2 of the backplane

If the **IO card to which a remote printer is connected** is installed in a spare slot on the backplane then use the corresponding terminals

A  5V  B  0V  Tx CTS Rx RTS
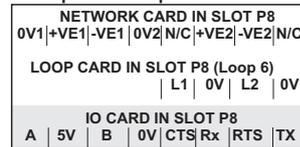
P4

Terminal card

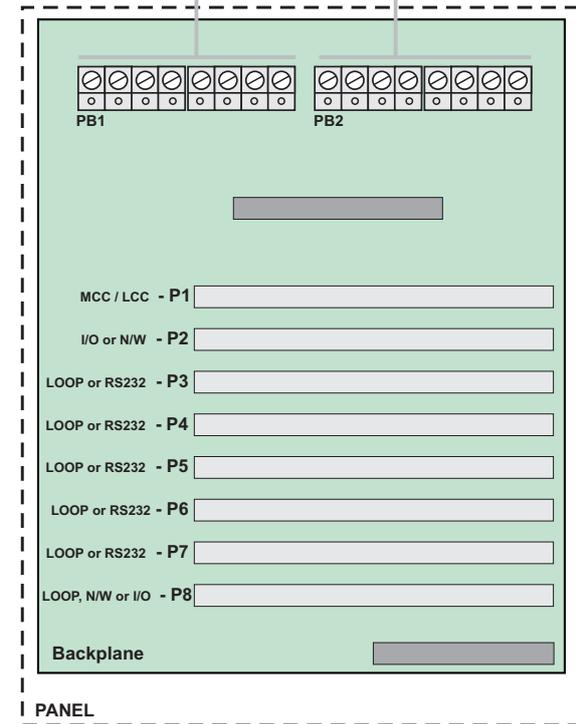PANEL / NODE

## RS232 / RS485 Communication

The network node offer RS232 and RS485 communication via the IO card. With a domain IO card in slot P2 of the backplane, it offers RS232 and RS485 communication via terminal block P4 on Terminal card. The communication baud and panel address are configured by setting the DIL switch located on the left edge of the Display Keyboard card.

PORT 1        PORT 0

IO card

Terminals for IO card in slot P2 of the backplane

RS485          RS232

A  5V  B  0V  Tx CTS Rx RTS

P4

Terminal card

PANEL

IO, Network or Loop card option

| NETWORK CARD IN SLOT P8 |
| 0V1 | +VE1 | -VE1 | 0V2 | N/C | +VE2 | -VE2 | N/C |

| LOOP CARD IN SLOT P8 (Loop 6) |
| L1 | 0V | L2 | 0V |

| IO CARD IN SLOT P8 |
| A | 5V | B | 0V | CTS | Rx | RTS | TX |

IO or Loop card option

| IO (RS232) CARD IN SLOT P7 |
| ⏚ | N/C | ⏚ | 0V | CTS | RX | RTS | TX |

| LOOP CARD IN SLOT P7 (Loop 5) |
| L1 | 0V | L2 | 0V |

PB1        PB2

MCC / LCC  - P1
I/O or N/W  - P2
LOOP or RS232  - P3
LOOP or RS232  - P4
LOOP or RS232  - P5
LOOP or RS232  - P6
LOOP or RS232  - P7
LOOP, N/W or I/O  - P8

Backplane

PANEL
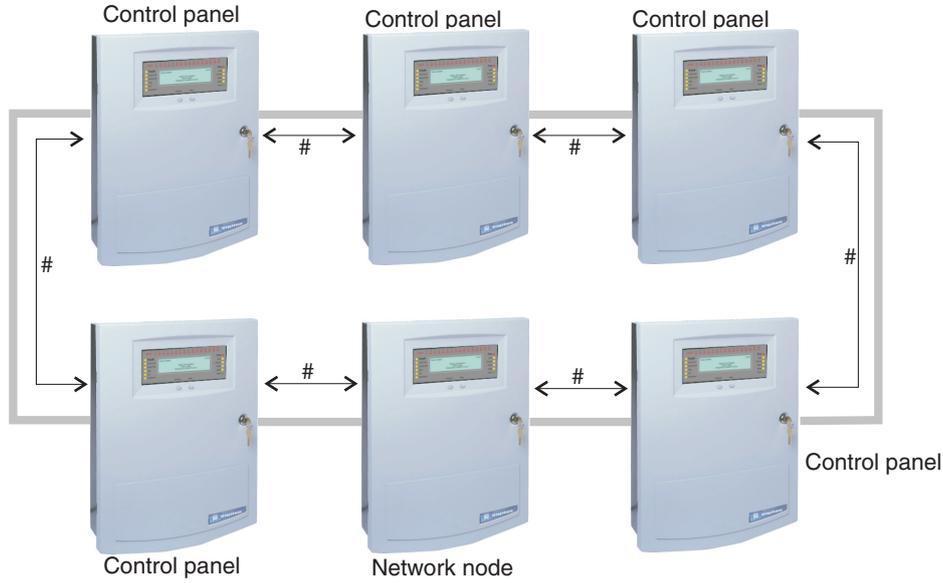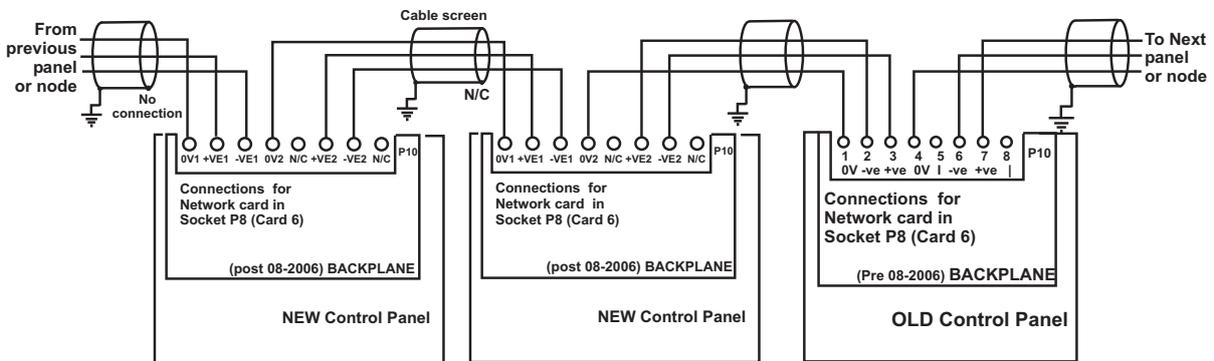
# Network of single systems

It is possible to network together up to 31 standalone Vigilon EN54 fire alarm systems. Each standalone system has an EN54 Vigilon control panel that is fitted with a network card. The network card permits RS485 communication between control panels / network nodes. The cable distance between panels and nodes can be up to 1.2Km maximum. The network node is a central point of information and has no loop supporting capabilities.
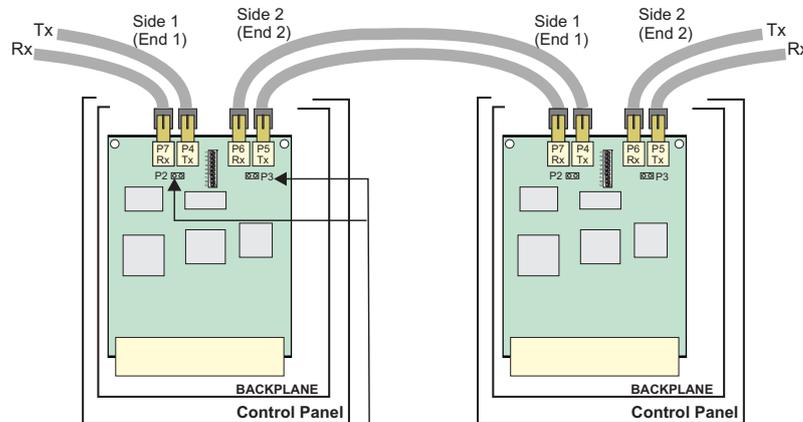
Control panel          Control panel          Control panel

#     #

#                                                    #

#     #

Control panel                                    Control panel

Control panel          Network node

\# - 1.2Km Copper network cable distance
2Km Fibre network cable distance

## Copper network connections

From previous panel or node

Cable screen

To Next panel or node

No connection

N/C

0V1 +VE1 -VE1 0V2 N/C +VE2 -VE2 N/C  P10

Connections for Network card in Socket P8 (Card 6)

(post 08-2006) BACKPLANE

**NEW Control Panel**

0V1 +VE1 -VE1 0V2 N/C +VE2 -VE2 N/C  P10

Connections for Network card in Socket P8 (Card 6)

(post 08-2006) BACKPLANE

**NEW Control Panel**

1  2  3  4  5  6  7  8  P10
0V -ve +ve 0V I -ve +ve |

Connections for Network card in Socket P8 (Card 6)

(Pre 08-2006) **BACKPLANE**

**OLD Control Panel**

## Fibre network connections

Tx
Rx

Side 1 (End 1)

Side 2 (End 2)

Side 1 (End 1)

Side 2 (End 2)

Tx
Rx

P7 Rx | P4 Tx | P6 Rx | P5 Tx

P2

P3

BACKPLANE
**Control Panel**

P7 Rx | P4 Tx | P6 Rx | P5 Tx

P2

P3

BACKPLANE
**Control Panel**

**Links P2 and P3 are booster links.**
**Normally the links are not fitted, however for distance exceeding 750m the links must be fitted.**
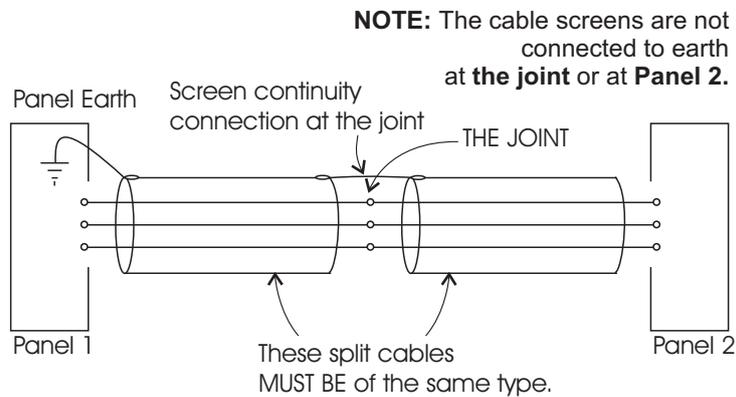
## Network wiring

> ℹ️ **In countries where the European EMC directive is in force use only those cables that are EMC Compliant, see list under Recommended Network cables.**

The recommended cables used to interconnect control panels and network nodes are listed in this section. The cables may also be used to connect Gent supervisor to a control panel or Network node.

## Network cable screen continuity



**NOTE:** The cable screens are not connected to earth at **the joint** or at **Panel 2.**

Panel Earth

Screen continuity connection at the joint

THE JOINT

Panel 1

These split cables MUST BE of the same type.

Panel 2

Ensure a good screen continuity joint exist where there is a split cable.

> ⚠️ **DO NOT mix cables of different types on the same leg of a network, as this will create impedance imbalance and disruption to data communication.**

## Installing with MICC Cable

> ⚠️ **When using standard MICC cable in a network the different legs of the cable must not be closely placed together, as this will cause signal crosstalk which results in communication failure.**

There are three practical way of overcoming the crosstalk problem:

☐ used a twisted-core MICC cable

☐ put a ferrous screen between the cables (ie in the two runs of steel conduit)

☐ maintain a distance between the network cables of at least 50mm

# Cables

ℹ️ **If instructed the installer may need to terminate as well as connect the cables to the appropriate terminal blocks.**

## Cable separation

There should be as much physical separation as possible between the cables and the mechanical protection of the cable should be to a particularly high standard. This is to minimise the risk of accidental damage to both cables. There should be separation from the mains supply cable.

## Requirements of cables

The *British Standard BS5839 Part 1  Code of practice for system design, installation, commissioning and maintenance* states the requirements for standard and fire resisting cables in Clause 26.2 section d and e.

d) **Standard fire resisting cables** should meet PH 30 classification when tested in accordance with EN50200 and maintain circuit integrity if exposed to the following test:

- a sample of the cable is simultaneously exposed to flame at a temperature of 830ºC -  0+40ºC and mechanical shock for 15min, followed by simultaneous exposure to water spray and mechanical shock for a further 15min.

e) **Enhanced fire resisting cables** should meet the PH120 classification when tested in accordance with EN 50200 and maintain circuit integrity if exposed to the following test:

- a single sample of the cable is simultaneously exposed to flame at a temperature of 930ºC - 0+40ºC and mechanical shock for a period of 60min, followed by simultaneous exposure to water spray and mechanical shock for a further 60min."

ℹ️ **The cables listed in this manual are those that have been tested for EMC compliance with the system products.**

## Network cables

### Enhanced Network cables

## Approved cables for network wiring
(EMC Compliant)

☐ **Draka Firetuf FT120 Enhanced FTPLUS3EH1.5**
(Previously Firetuf FT Plus)
1.2Km maximum Panel to Panel or Panel to Network node cable distance
- 3 Cores
- each core having 1.5mm$^2$ cross section area

☐ **Fireshield Enhanced FSN G2000**
1.2Km maximum Panel to Panel or Panel to Network node cable distance
- 3 Core (1 pair + 1) and earth
- each core having 1mm$^2$ cross section area

☐ **Mineral insulated copper cable**
800m maximum Panel to Panel or Panel to Network node cable distance.
- BS6207: Part 1
- 3 parallel cores
- having continuous metal sheath encapsulating
- each core having 1.5mm$^2$ cross section area
- a **red** cover sheath (preferred for alarm applications)

☐ **Prysmian (formally Pirelli) FP Plus***
1.2Km maximum Panel to Panel or Panel to Network node cable distance
- 3 Cores each having 1.5mm$^2$ cross section area

### Standard Network cables

## Approved cables for network wiring
(EMC Compliant)

☐ **Belden Armoured equivalent (EMC Compliant)**
This cable being a two pair cable to BS5308:Part 1 (type 2) 0.5mm$^2$ (16/0.2mm).
600m maximum Panel to Panel  or Panel to Network node cable distance

☐ **Belden No 9729 (UL Style 2493) (EMC  Compliant)**
1.2Km maximum Panel to Panel or Panel to Network node cable distance
- 2 twisted pairs
- Each pair individually screened 24AWG (7 strands x 32 AWG)
- Capacitance between conductors 39.4pF/m at 1kHz
- Capacitance conductor to screen 72.2pF/m at 1kHz
- Temperature range -30ºC to +60ºC

☐ **Belden No. 9842 EIA RS485 Applications, O/A Beldfoil® Braid**
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- Must have following characteristics:
- 2 twisted pairs
- 24AWG (7 strands x 32 AWG) conductors
- Characteristic impedance - 120 ohms
- Capacitance between conductors - 42pF/m at 1kHz
- Capacitance conductor to screen - 75.5pF/m at 1kHz

☐ **Belden TR No. 89729 (Teflon jacketed)**
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- 2 twisted pairs
- Each pair individually screened 24AWG (7 strands x 32 AWG)
- Capacitance between conductors 39.4pF/m at 1kHz
- Capacitance - conductor to screen 72.2pF/m at 1kHz
- Temperature range up to 200$^o$C

☐ **Datwyler PYROFIL 8750-U/R \***
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- 4 cores
- each core having 1.5mm$^2$ cross section area

☐ **Delta Crompton Firetuf FDZ1000\***
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- 3 cores

☐ **Doncaster Cables Firesure Plus\***
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- 4 Cores (2- pair plus earth)
- each core having 1.5mm$^2$ cross section area

☐ **Huber & Schner Radox series FR communication cable\***
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- 3 cores twisted triad screened
- 1.5mm$^2$ (7/0.42 stranded) conductors
- Nominal impedance 200 ohms (1KHz)
- Capacitance - conductors 110pF/m (1KHz)
- Capacitance - screen to core 210pF/m (1KHz)
- Fire resistance tested to BS6387 category CWZ and IEC 331.

☐ **Prysmian (formally Pirelli) FP200 Flex\* (EMC Compliant)**
800m maximum Panel to Panel or Panel to Network node cable distance

- 3 Cores
- each core having 1.5mm$^2$ cross section area

☐ **Prysmian (formally Pirelli) FP200 Gold\* (EMC Compliant)**
1.2Km maximum Panel to Panel or Panel to Network node cable distance

- 3 Cores
- each core having 1.5mm$^2$ cross section area

☐ **Prysmian (formally Pirelli) FP 400 Armoured (EMC Compliant)**
800m maximum Panel to Panel or Panel to Network node cable distance

- 4 Cores
- each core stranded 1.5mm$^2$ cross section area

> ℹ️ **The cables marked \* utilise laminated aluminium tape with a tinned drain wire for electrostatic screening. Under certain environmental conditions** *galvanic action* **may take place between the aluminium and the drain wire. This will severely** *degrade EMC performance* **as the foil to drain wire** *impedance will increase.*

# Domain Bridge across Networks

It is possible to connect two or more Vigilon networks together by means of domain bridge. To domain bridge two or more networks a Domain bridge IO card must be installed in the bridging node / panel.

There are various methods of domain bridging depending on the distances between node / panel. Domain bridge can be made directly using RS232 ports of Domain bridge IO card or by using Domain bridge Fibre optic cards.
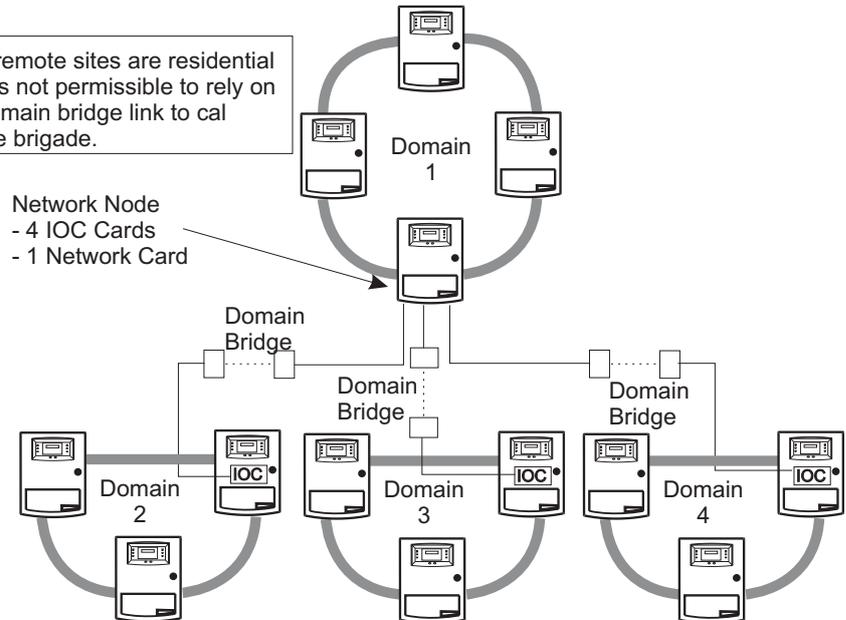
**Methods of domain bridging**

> ℹ️ **A domain bridge IO card is required to be installed in the bridging panel/node.**
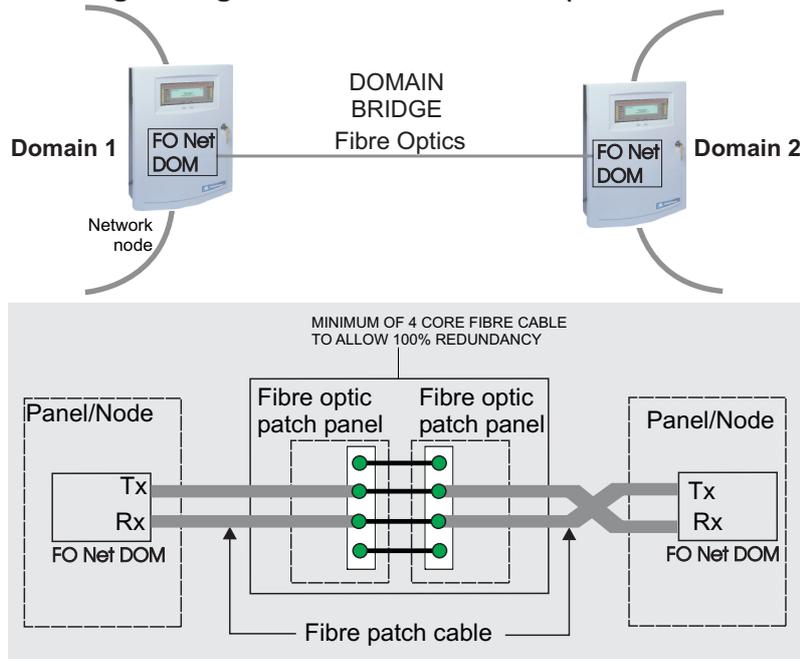
Domain bridge IOC

**DOMAIN BRIDGE**

Network node — IOC — RS232 15m max — IOC — Network node
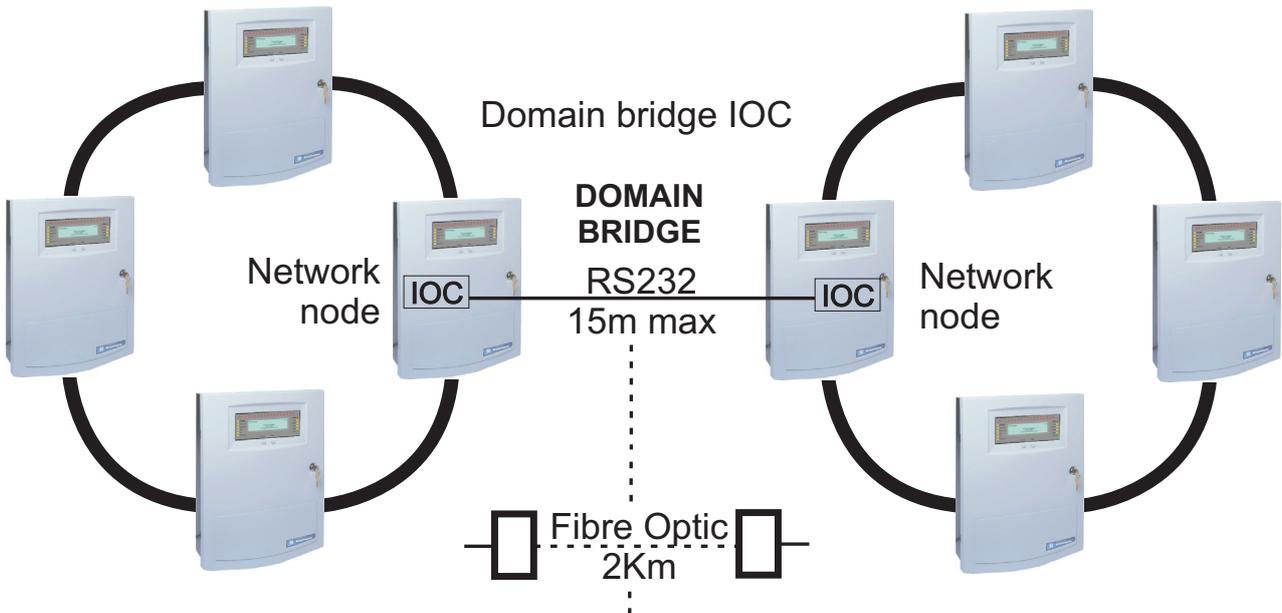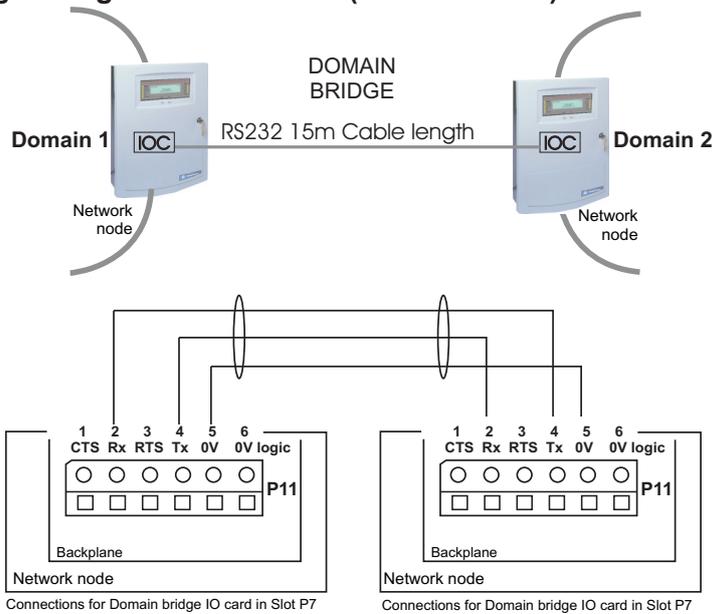
Fibre Optic 2Km

**Star connection**

> ℹ️ If remote sites are residential it is not permissible to rely on domain bridge link to cal fire brigade.

Network Node
- 4 IOC Cards
- 1 Network Card

Domain 1

Domain Bridge

Domain Bridge

Domain Bridge

Domain 2

Domain 3

Domain 4

## Fibre Optic Domain bridge using FO Network DOM card (VIG-NC-DOM-FO)

DOMAIN BRIDGE
Fibre Optics

**Domain 1** FO Net DOM

FO Net DOM **Domain 2**

Network node

MINIMUM OF 4 CORE FIBRE CABLE
TO ALLOW 100% REDUNDANCY

Panel/Node

Fibre optic patch panel  Fibre optic patch panel

Panel/Node

Tx
Rx

Tx
Rx

FO Net DOM

FO Net DOM

Fibre patch cable

## RS232 Domain bridge using Domain IO card (VIG-IOC-DOM)

DOMAIN BRIDGE

**Domain 1** IOC   RS232 15m Cable length   IOC **Domain 2**

Network node

Network node

1 2 3 4 5 6
CTS Rx RTS Tx 0V 0V logic

**P11**

Backplane
Network node
Connections for Domain bridge IO card in Slot P7

1 2 3 4 5 6
CTS Rx RTS Tx 0V 0V logic

**P11**

Backplane
Network node
Connections for Domain bridge IO card in Slot P7

## On completion of installation

All outstanding commissioning work is done by the servicing organisation

**WEEE Directive:**
At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre.
Do not dispose of with your normal household waste. Do not burn.

**At the end of their useful life, the packaging, product and batteries should be disposed of via a suitable recycling centre and in accordance with national or local legislation.**

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