

Quantec Network Splitter

INSTALLATION INSTRUCTIONS

This product is designed to aid the installation and servicing of the Quantec Addressable Call System and give a degree of protection against short circuit faults which can cause the failure of any networked system.

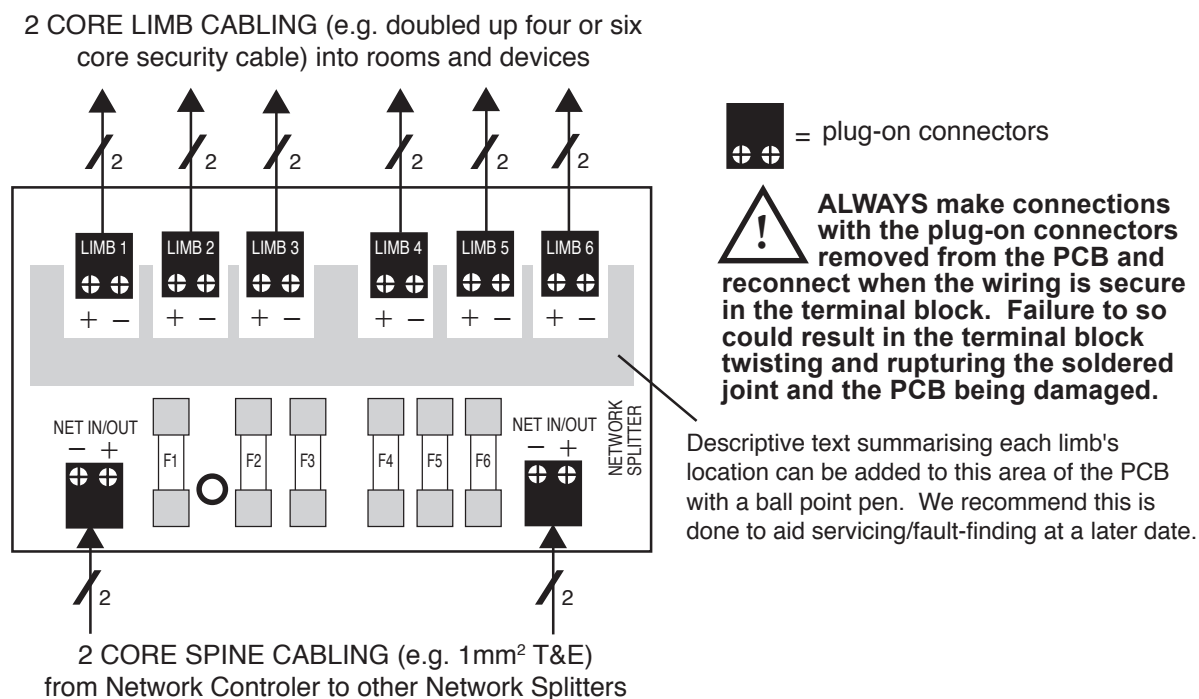
By incorporating network splitters when installing the system, it is possible to connect Quantec's main 'spine' cabling (usually low resistance 1mm² T&E cable) to 'limbs' of two core cabling (such as doubled up four or six core security cable looped into rooms and network devices).

This method of installation has several advantages:

- (1) It reduces the risk of voltage drop problems.
- (2) The plug-on connectors supplied with splitters means easier commissioning and fault finding.
- (3) Each limb is fused so network shorts will blow the fuse and leave the rest of the system working.
- (4) Security cable is easier to connect to devices than T&E cable.

NB: Quantec's general wiring instructions (Document No. DNUQ171717) should be adhered to at all times.

NETWORK SPLITTER PCB LAYOUT



CIRCUIT DESCRIPTION

Each of the individual limbs are fused at 400mA (Quick blow to BS/EN 60127-2 IEC 27-2).

When power is applied to the network, the green Power LED at the front of the Network Splitter will illuminate, indicating that power is applied to that part of the network.

A short circuit on any of the limbs will cause a substantial current to flow and, provided the resistance of the circuit is low enough, blow the respective fuse. Internal electronics sense this and illuminate the yellow fault LED. This fault WILL NOT be reported back to the network controller as a short circuit but as a number of device failures i.e. it will highlight the precise ID numbers of any devices that have been 'cut off'.

WIRING INSTRUCTIONS

- (1) The splitter mounts on a 25mm deep double back box and should be sited for easy access.
- (2) It is recommended that the spines be wired in cable which is heavy enough to minimise the risk of voltage drop. In most instance 1mm² T & E is ideal for this purpose but please refer to Quantec's general wiring instructions for further details (Document No. DNUQ171717).

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(3) Each Limb may be wired in 'Burglar Alarm' type wire although in some installations this may not be permitted. Again, please refer to Quantec's general wiring instructions.

(4) The splitter should be sited in a convenient and efficient location e.g. at corridor junctions etc. so as to minimise the amount of Burglar Alarm wiring run.

COMMISSIONING

A Typical commissioning sequence would be:-

(1) Terminate all connections to devices and splitters but DO NOT connect the plug-on Limb connectors.

(2) With the main controller powered up, connect all the spine connectors and ensure that all the Green LED's on network splitters are illuminated. If not locate and rectify the wiring fault.

(3) Connect each limb one by one and programme the relevant devices. If the Yellow fault LED illuminates when a limb is connected then it indicates a short circuit wiring fault. Open circuit wiring faults are characterised by non-operation of individual devices and are not indicated on the network splitter.

(4) In the white area on the PCB next to the limb write which devices are connected to that limb. This will make any fault finding easier.

IMPORTANT NOTES

(1) DO NOT place devices on the 'Spine' portion of the network. Spines are not fused and any shorts to the spine will close down the entire network which will not come back to life until the fault has been cleared.

(2) The network controller's network driver is extremely efficient and designed to protect the drive circuitry against catastrophic faults. It will consequently withstand quite severe abuse. However, if the wiring resistance to any short is such that it cannot reliably sink below 1A it is possible that the 400mA fuse will either (a) not blow at all; or (b) take a relatively long time to blow. For this reason the resistance to any part of the network from the main controller should be kept less than 12Ω. As a guide 1mm² T&E has a resistance of 4.5Ω per 100m and 2cores of a 4-core burglar alarm cable have a resistance of approx 16Ω per 100m (4-core organised as 2 pairs of 2 in parallel = 8Ω per 100m, 6-core organised as 3 pairs of 2 in parallel = 5¹/₂Ω per 100m).

(3) Any fault occurring after the 'Limb' has been programmed (e.g. joiner or plumber shorting or burning cable), will result in the network controller flagging individual device faults. If the fault results in the splitter blowing a fuse then the yellow fault LED on that particular splitter will also be illuminated.

(4) If a fuse is left out of an unused limb then the splitter will not indicate a fault. Devices must be connected to indicate a fault.

(5) Faulty circuits (i.e. sections of wiring connected to 'limbs') may be located by systematically going through network splitters and interpreting the information presented by the LED's.

FAULT-FINDING

Sympton	Probable cause	Solution
Device failures showing on Network Controller. All splitters checked, all green LEDs on and all yellow LEDs off.	Open circuit fault on limb where reported devices are.	Unplug limb from splitter. Locate and repair fault.
Complete network dead. No lights showing on any splitter.	Short circuit fault on a 'spine'	Repair fault by systematically disconnecting parts of the spine from the network at the network splitters. When the fault clears, the network should immediately come back to life.
Device failures showing on Network Controller. All splitters checked, all green LEDs on, one yellow LED illuminated.	Short circuit fault on a limb wired to the splitter showing the fault, resulting in blown fuse.	Locate blown fuse on splitter. Repair fault and replace fuse.
Device failures showing on Network Controller. All splitters checked, some green LEDs not on.	Open circuit fault to spine wiring.	Test spine wiring between relevant splitters. Repair fault,