

NETWORK SYSTEM CONFIGURATION

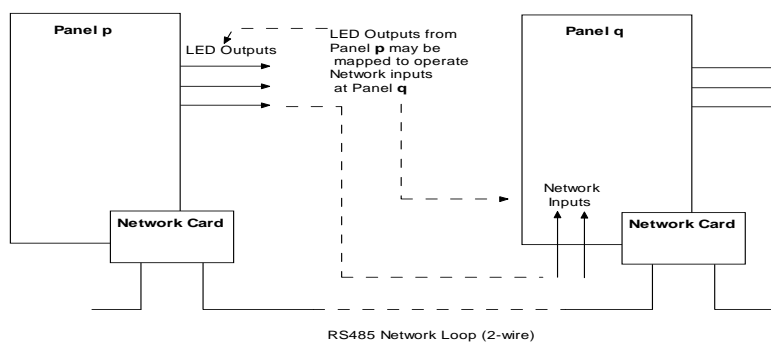
INSTALLATION

Overview:

Up to 99 network cards may be connected together to form a **Network System**. Each network card is connected to an **F100** or **F120** fire alarm panel. The **LED Outputs** from any panel may be mapped by the Network System to activate **Network Inputs** of other panels or Network **LED Mimics**.

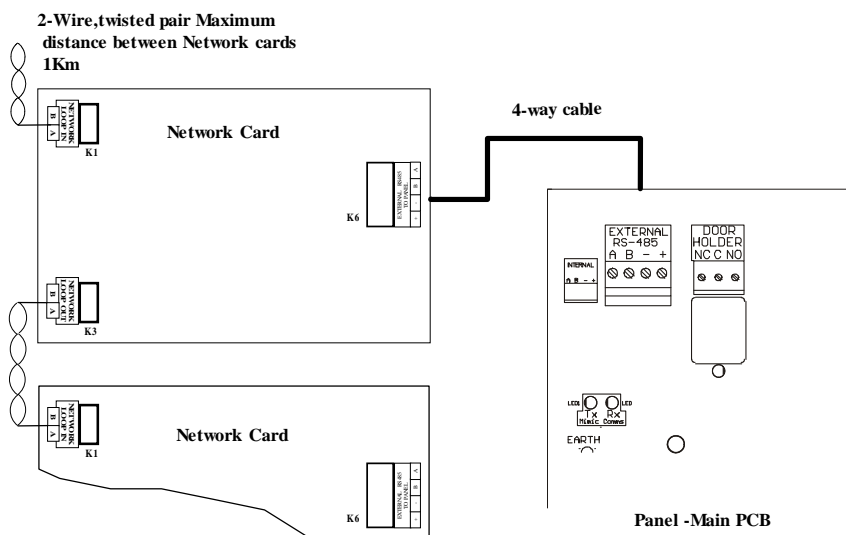
A **Network Configuration Program**, running on a PC, is used to define the mapping of the **LED Outputs** of each panel to one or more **Network Inputs** of other panels.

When the network configuration has been completed using the **Network Configuration Program**, the PC is connected to the **RS232** connector of any one of the network cards; programming of the cards can commence. All network cards may be programmed from the connection at one network location.



Physical Connection:

Each Network Card is connected at K6 to the Internal or External RS485 port of an F100 or F120 panel using a 4-way cable. Power is supplied to the Network Card through this cable by the panel. The power requirement is 27V, 55mA for hardware version 2.09 and 27V; it is 75ma for hardware version 2.20.



The Network Cards are connected together using a twisted pair cable. The cable is connected between each LOOP OUT connector K3 and the adjacent card LOOP IN connector K1. This is repeated to include all the network cards until the loop is complete. Ensure that the signal polarities are correct: join K1-terminal A of one card to K3-terminal A of the next, and similarly for terminal B. The maximum cable length between each Network Card is 1Km using 0.5mm² conductors.



Firmware:

There are two different firmware configurations for the Network Card:

Network Panel (NETCARD): for Fire Panels and Network LED Mimics.

Network NCU (NETCD-NCU): for Display Units (NCU and NDU) and Pager interfaces.

Since the first release of the Pertronic Network in 2004, there have been several hardware and firmware upgrades to the network card. Table 1: Firmware Compatibility summarizes the required network firmware versions and the network utility for all currently released network card hardware versions.

Table 1: Firmware Compatibility

Network Card Hardware Version	Network Panel Card Firmware Version (NETCRDxx.xx.xx)	Network NCU Card Firmware Version (NETSUPxx.xx.xx)	Network Panel Utility Version
2.04 - 2.09	1.04 – 1.08.03	1.04 – 1.08.03	2.06 and 2.08
2.07 - 2.09	2.00	2.00	2.08 only
2.20	3.00	3.00	2.08 only

Version 3.00 firmware (V2.20 PCB) is backwards compatible with version 2.00 firmware (V2.09 PCB), if the AUX 1 jumper is fitted on the V2.20 PCB; this lowers the baud rate on the network loop communications to match the version 2.0 firmware. Older version 1.08 firmware is not compatible with either version 2.00 or 3.00 firmware.

With the exception of mixing version 2.00 and 3.00 firmware on the same network, network firmware on all network cards must be of the same version.

Supervisory Displays (NCU/NDU or LED Mimic):

The NDU (Network Display Unit) and NCU (Network Control Unit) are LCD / keyboard displays connected to a Network NCU type network card, product code: NETCD-NCU. The Network LED Mimic is a F100PDB12 LDU or LAC LED display connected to a Panel type network card, product code: NETCARD.

Each Network NCU card can have either one NCU connected, or up to eight (8) NDUs connected. In addition to the display, the card can be configured through the Network Utility to drive a Pager Base or Network printer via the on-board RS232 port.

Although the inclusion of an NDU or NCU in a network system is not a specific requirement, it is recommended to provide a site-wide view of events.

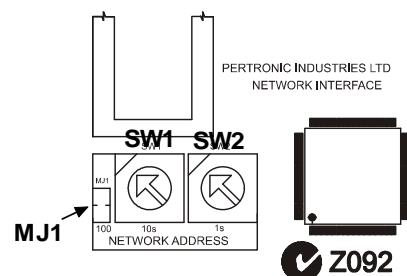
Each Network LED Mimic card can address up to 128 LEDs and can have up to a maximum of eight (8) network mimics connected. Network LED mimics should always be set to addresses from 01 to 08 for flashing LEDs, or 11 to 18 for non-flashing LEDs.

Connector K6/K7 on the Network Card is used to supply 27Vdc power and RS485 data to the Supervisory Display. Power only is required from the network panel or network panel power supply to the Supervisory Display network card. Under no circumstances should the internal F100 or F120 panel RS485 data be connected to a Supervisory Display network card.

Addressing:

A unique network address (1 to 99) is assigned to each card. An address outside of this range defaults to either address 1 or 99. The assigned addresses need not be contiguous, and need not start at address 1. It is recommended, however, to begin at address 1 and increment by 1 for each adjacent network card.

The network address is selected through the two rotary switches for 10's and 1's.





Isolate Switch:

SW4 (with positions labelled NORMAL and ISOLATE) is used, when in the ISOLATE position, to stop panel information being passed to the network and to prevent Network Inputs and other network information being passed to the connected panel. The remainder of the network system continues to operate normally.

The Isolate switch has no function on Network NCU or Network LED Mimic cards.

F100 and F120 Panel Settings:

To enable communication from a network panel to the network, the network option must first be enabled in the panel configuration.

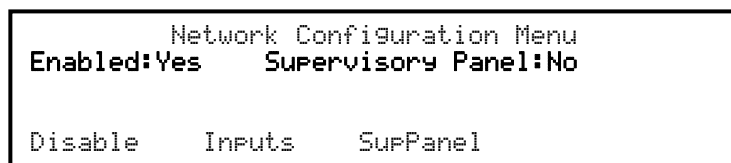
For an F100 these options are found in the “Mimic Menu” under Engineering Options. “Net_Off” must be changed to “Net_On” as in “ Figure 1: F100 ” to allow communication with the network.

Figure 1: F100 Mimic Menu



For an F120 this option is found in the “Network” Menu under Engineering Options. “Enabled:No” must be changed to “Enabled:Yes” to enable communication with the network. Refer to “Figure 2: F120 Network Configuration Options”.

Figure 2: F120 Network Configuration Options



“SPV” or “Supervisory Panel” flags are only set if the main panel (address 0) display is physically absent and the network flag enabled. Failure to disconnect an F100 main panel (address 0) display with the SPV flag set will disrupt normal panel operation.

Installation Checks:

Install network cards as outlined in “Network Connection”.

- Check that all A (IN) terminals are joined to A (OUT) terminals and that all B (IN) terminals are joined to B (OUT) terminals on the network loop. The network must form a complete network loop in order to be successfully programmed.
- Set a unique address on each network card (Range 1-99).
- Ensure that only Network Panels and network LED Mimics are connected to network cards configured with “NETCARD” firmware, and only Supervisory Displays and Pager interfaces are connected to network cards with “NETCD-NCU” firmware.
- Check that all network cards have compatible firmware as in “Table 1: Firmware Compatibility” and that all cards have the same version of firmware.
- Enable the network on each network panel.
- Using the PING command in the Network Configuration program, ensure that the network loop is complete.

Full details on installation can be found in the Pertronic Network Technical Manual.

Network Configuration Program:

Refer to the separate network instruction sheet, “Using the Network Configuration Program,” to set up and configure the system and to upload the configuration to the network cards.



Network Errors:

The Network System is designed to tolerate single loop communication failures (typically loop shorts, open circuits, or component failures) such that the system continues to operate normally. These failures and other types of fault are reported to the connected panels. The fault messages are detailed in Table 2: F100 and F120 Network Messages.

Table 2: F100 and F120 Network Messages

F100 LCD Message	F120 LCD Message	Meaning
Network Dupl Addr	Network Duplicate Addr	Another network card on the system has the same address as the connected card. Change the address of one card to a non-used address.
Network Lost [IN]	Network Lost [IN]	The communication link between the connected card and the network card connected to the IN terminal has been lost. Check the wiring and connectors for open or short circuits.
Network Lost [OUT]	Network Lost [OUT]	The communication link between the connected card and the network card connected to the OUT terminal has been lost. Check the wiring and connectors for open or short circuits.
Net Config Error	Network Config Error	The connected card has not been configured in the Network System program. Reprogram the system to include the connected card network address.
Network Earth Fault	Network Earth Fault	The network cable connected to the OUT terminal has a connection to earth. Check the cable.
Network Error	Network Error	This message indicates that network errors not associated with the connected card have occurred on the system. These are: <ul style="list-style-type: none"> address duplicated network card missing loop broken extra card earth fault
Network Isolated	Network Isolated	The isolate switch of the connected card is active.