

# PERTRONIC INDUSTRIES LTD

## DATASHEET

### High Capacity Net2 Network Card

#### NET2CARD



## Product Overview

The **Pertronic F220® High Capacity Net2 Network Card (NET2CARD)** is the central building block for the Pertronic Net2 Network System.

A Net2 Network Card may be configured to interface one of the following devices to a Pertronic Net2 Network.

- » Pertronic F220® fire panel
- » Modbus master device
- » Pertronic FireMap® workstation
- » Printer, pager, nurse call, or other text-based system

Each Net2 Network Card provides a Network Peripheral Bus for communicating with Net2-compatible RS-485 peripherals. The bus is capable of addressing up to eight Net2 NCUs or Net2 Mini-Mimics, together with up to eight LED display controllers such as the LAC485 or PDB12.

### Modbus

When configured as a Modbus interface, the Net2 Network Card provides a supervised bi-directional interface between a Net2 Network System and a Modbus master device such as a building management system.

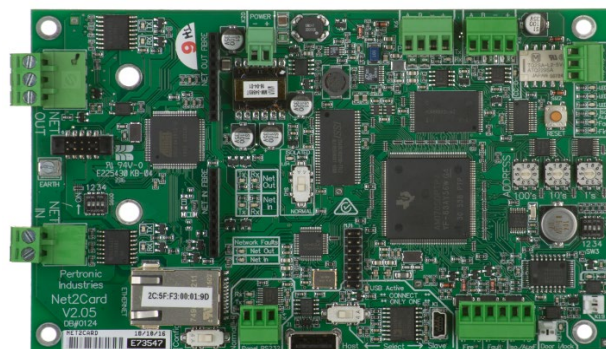
The network card provides 3,000 Boolean Nodal Mapping Objects (NMO). NMOs may be configured as Modbus coils, discrete inputs, holding registers, or input registers. (A Modbus register can hold up to 16 NMOs). Any F220 fire panel object or event within the Net2 Network may be mapped to any NMO.

### Pertronic FireMap® Interface

When configured as a FireMap interface, the Net2 Network Card interfaces the entire Net2 Network with a FireMap workstation over a TCP/IP Ethernet connection.

## Features

- » Up to 133 Net2 Network Cards may be connected in a single Net2 Network System
- » Two half-duplex RS-485 network ports (Net In, Net Out) with built-in terminating resistors
- » Optional dual fibre-optic full-duplex network ports (single-mode or multi-mode versions)
- » Isolates any faulty ring segment
- » The Net2Card's Network Peripheral Bus provides an RS-485 data circuit and a 24 V dc power circuit.
- » The bus data circuit communicates with
  - » Up to 8 Net2 NCUs or Net2 mini-mimics, and
  - » Up to 8 LED display controllers (such as the Pertronic LAC485 or Pertronic PDB12)
- » The bus power circuit powers 1 or 2 Net2 NCUs or Net2 mini-mimics, depending on brightness settings
- » Additional Net2 NCUs or Net2 mini-mimics require suitable power supplies (for example, the main power supply of a fire indicator panel)
- » Three rotary switches for configuring the network node address
- » Bi-directional Modbus interface provides:
  - » 3,000 Boolean Nodal Mapping Objects (NMOs)
  - » Ability to map up to 8 timers from any panels on the network to Modbus registers. (Multiple timers may be mapped to a single register. The total number of mapped timers must not exceed 8.)
  - » Mappable I/O watchdog
- » On-board clock with super-capacitor backup power maintains system time for at least 24 hours without system power
- » Automatically creates a complete configuration backup of all network card and networked panels whenever a USB stick is plugged in
- » Earth fault detection on the Net Out port
- » Communicates with an F220 fire panel via the F220 Internal High-Speed RS-485 Bus
- » USB host port
- » RJ45 10/100 Ethernet port for Modbus, FireMap or Text (Printer/Pager) interfaces
- » RS-232 port (non-isolated) for text interface (note 4)



*Pertronic F220® High Capacity Net2 Network Card*

## Text Interface

When configured as a text interface, the Net2 Network Card exports selected fire system events as text, suitable for printers, pagers, nurse-call systems, or other text-based systems. The output message format is defined in FireUtils® using a simple and versatile template.

## Architecture

The Net2 Network Card connects with the Net2 Ring Circuit via two bi-directional ports: Net In and Net Out. The standard ports are electrically-isolated half-duplex RS-485 connections. The ports may be configured as single-mode or multi-mode fibre-optic ports by installing Pertronic Net2 Fibre-Optic Converter (FIBNET) modules.

Please refer to the "Net2 Network" datasheet for more information about the Pertronic Net2 Network.

## Specification

<b>Network Connections: Fibre-Optic</b>		ST or SC	<b>Modbus Protocol</b>		Modbus/TCP			
<b>Network Connections: RS-485</b>		Screw Terminals	<b>Modbus Objects</b>		Any combination of coils, discrete inputs, holding registers, and input registers, up to a total of 3000 bits (each register can hold up to 16 NMOs)			
<b>Network Data Rate (Copper &amp; Fibre)</b>		230.4 kbit/s						
<b>Peripheral Bus Data Rate (RS-485)</b>		115.2 kbit/s						
<b>Ethernet Connection</b>		RJ45 10/100						
<b>Ethernet/Modbus Data Rate</b>		100 Mbit/s (maximum)						
<b>Supply Voltage</b>		18 to 30 V dc	<b>Nodal Mapping Objects (Boolean)</b>		3000			
<b>Standby Current, excl. Peripheral Bus</b>		45 mA	<b>Modbus/FireMap IP Address</b>		Configurable			
<b>Operating Current (2 Copper Ports)</b>		75 mA	<b>Modbus/FireMap/Text IP Port</b>		Configurable			
<b>Operating Current (1 Copper, 1 Fibre)</b>		90 mA	<b>Text Interface (note 4)</b>		<b>Output</b>	TCP/IP (Client or Server), UDP (Client), Serial (RS-232)		
<b>Peripheral Bus Capacity</b>		<b>NCU and Mini-Mimics</b>			Up to 8	<b>Data Rate</b>	300 bit/s to 230,400 bit/s	
		<b>LED Display Controllers</b>			Up to 8	<b>Parity</b>	None, Even, Odd, Mark & Space	
<b>Peripheral Bus Current</b>		175 mA (maximum)			<b>Char Length</b>	7 to 8 bits per character		
<b>Dimensions (W x H x D)</b>		167 x 101 x 23 mm			<b>Stop Bits</b>	1, 1.5, or 2		
<b>Weight</b>		124 g			<b>Relative Humidity</b>		≤ 95 % non-condensing	
<b>Operating Temperature</b>		-10 °C to +50 °C						

### Configuration Options for Network Ports

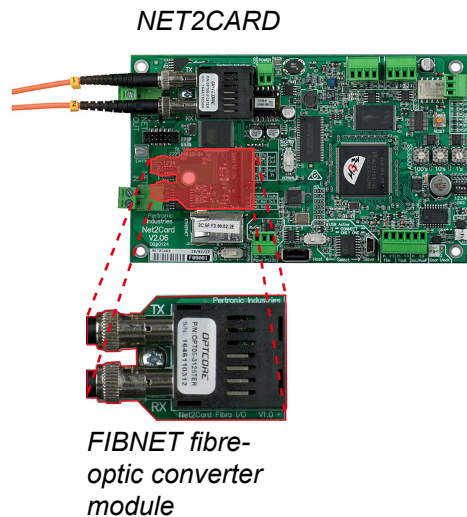
The Net2 Network Card connects with the Net2 Ring Circuit via two bi-directional ports: Net In and Net Out.

Data arriving at either port is regenerated and transmitted from the other port. The standard ports are electrically-isolated half-duplex RS-485 connections with built-in terminating resistors.

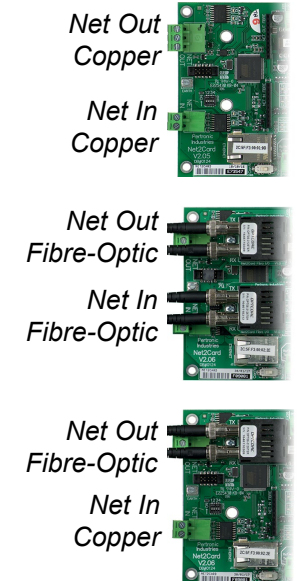
The ports may be configured as single-mode or multi-mode fibre-optic ports by installing Net2 Fibre-Optic (FIBNET) converters.

The FIBNET converter may be fitted to either or both of the Network Ports (Net In, Net Out). The converter plugs in to a connector on the port and is retained by a mounting screw and stand-off.

Please refer to the "Net2 Fibre-Optic Converter" datasheet for full details of the fibre-optic converter modules.



### Port Configuration Examples:



### Ordering Information and Notes

Product Code	Description
NET2CARD	Net2 Network Card
FIBNET-MMF	Multi-mode Fibre Converter for NET2CARD (2 km), ST Connector
FIBNET-MMF-SC	Multi-mode Fibre Converter for NET2CARD (2 km), SC Connector
FIBNET-SMF	Single-mode Fibre Converter for NET2CARD (20 km), ST Connector
FIBNET-SMF-SC	Single-mode Fibre Converter for NET2CARD (20 km), SC Connector

- To satisfy regulatory requirements in Australia, the network card should be co-located with an AS 7240.4-compliant power supply.
- A Net2 network card configured as FireMap, Modbus, or Text (Printer/Pager) interface can not be used to interface an F220 fire panel to the Net2 Network. Each FireMap, Modbus, or Text interface requires a dedicated Net2 network card. A Net2 Network system may include multiple FireMap, Modbus, or Text interfaces.
- On Net2 Network Cards configured as FireMap, Modbus, or Text interfaces, the Network Peripheral Bus can not be used.
- When interfaced via RS-232 with an external system, the Net2 network card should be powered from an isolated 24 V dc power supply such as a dc-dc converter.
- Please refer to the "Net2 Network" and "Net2 Fibre-Optic Converter" datasheets for more information about the Pertronic Net2 System.

The information in this document must not be treated as partial or complete instructions for the design, construction, installation, commissioning, or maintenance of fire detection, fire alarm, or building evacuation systems. Fire and evacuation systems must be designed and installed by properly qualified persons, in accordance with all regulatory requirements. Unless explicitly stated otherwise, this document provides typical specifications and nominal dimensions. Actual product performance and dimensions may vary.

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